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NIJS

New Indian Journal of Surgery
Volume 13 Number 1 / January – March 2022

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Original Article

New Indian Journal of Surgery
Volume 13 Number 1/ January–March 2022
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.13122.1

Clinical Study of Right Iliac Fossa Mass: A Prospective Study

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How to cite this article:
Manisha Narayan, Priyanka Khilari/Clinical Study of Right Iliac Fossa Mass: A Prospective Study /New Indian J Surg. 2022;13(1): 9–13.

Introduction

A right iliac fossa mass is a 'temple of surprises' and a common presentation at emergency department, requiring skill and keeness to diagnose. Patients with right iliac fossa mass will be dealt by a general practitioner, a surgeon or a gynecologist and knowledge of anatomy, with detailed history, clinical examination directing towards the pathological process followed by lab analysis and imaging leads to a diagnosis.

The most common differential diagnosis encountered are: appendicular mass, appendicular abscess, ileocecal tuberculosis, right ovarian mass, right ectopic kidney, rectus sheath hematoma, carcinoma caecum and ameboma, actinomycosis and crohn's disease.[1,2] An important differential diagnosis is often between an appendicular mass, carcinoma of the caecum and ileocecal tuberculosis.[3] In Subcontinent, tuberculosis has been the main cause of intestinal obstruction and perforation.[1,4]

Cecal carcinoma is more common in the elderly and higher socio-economic group consuming less fibrous diet.[1,5,6] Appendicular masses are seen in relatively younger people with both conservative and operative strategies. Other less common causes are diagnosed and managed accordingly.[7]

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Received on: 04.11.21
Accepted on: 03.12.21

Aims and Objectives

- To Study various diseases which can present with mass in the right iliac fossa.
- To Study the modes of investigations to diagnose various diseases presenting with mass in the right iliac fossa.
- To study the various modes of management including complications and the prognosis.

Methodology

Source of data: patients presenting with right iliac fossa mass in A.J. Institute of Medical Sciences, Mangalore between October 2018 to May 2020.

Method of Collection of Data

Patient provisionally diagnosed to have mass in the right iliac fossa by clinical evaluation will be included in this prospective study. A total minimum number of 50 patients will be studied.The period of study is from October 2018 to May 2020.

Direct interview with patient and obtaining a detailed history. Thorough clinical examination. Appropriate investigations performed over the

patients. A pretested structural proforma will be used to collect relevant information for each individual patient selected.

Cases will be selected consequently with following inclusion and exclusion criteria

Inclusion Criteria

Patients presenting with right iliac fossa mass to A.J. Institute of Medical Sciences, Mangalore.

Exclusion Criteria

- Female patients with pathology related to uterus and its appendages.
- Right iliac fossa masses secondary to extra-abdominal pathology.
- Bony swellings of the region.

Observation and Results

In our study, 33 cases of "Mass in the right iliac fossa" cases were chosen over a period of two year from October 2018 to May 2020.

Table 1: Incidence of Various Conditions.

Diagnosis	No of Cases	Percentage
Appendicular Mass	17	52
Appendicular Abscess	3	9.09%
Ileocaecal Tuberculosis	3	9.09%
Carcinoma Caecum	6	18.1%
Retroperitoneal Sarcoma	1	3.03
Psoas Abscess	3	9.09%
Total	33	100

In our study of 33 cases, 61 % of cases were related to appendicular pathology either in the form of Appendicular mass (52%) or appendicular abscess (9%), 9% of cases were Ileocaecal tuberculosis, 18% of cases were carcinoma of caecum, 3% of cases were retroperitoneal sarcoma and 9% of cases were related to psoas abscess.

Table 2 : Age Distribution.

Diagnosis	No. of Cases	21-30	31-40	41-50	51-60
Appendicular mass	17	8	8	0	1
Appendicular abscess	3	2	1	0	0
Ileocaecal tuberculosis	3	1	1	1	0
Ca.caecum	6	0	0	2	4
Retroperitoneal sarcoma	1	0	0	0	1
Psoas abscess	3	1	0	2	0
Total	50	12	10	5	6

In our study group, it was observed that the youngest patient was of age 21years who presented with appendicular mass and the oldest was 60 years of age admitted with carcinoma caecum.

In our study, Appendicular mass manifested most commonly in 2nd & 3rd decade (47%) and mean age is 33 years. Appendicular abscess was common in 2nd (66.6%) followed by 3rd decade (33.3%) & mean age is 29.6 years. Ileocaecal tuberculosis was found equally in all age group & mean age is 38.3 years.

Carcinoma caecum was common in the 5th decade (66%) & mean age is 56 years. Retroperitoneal sarcoma was common in the 5th decade & mean age is 58 years. Psoas abscess was common in 4th decade (66.6%) and mean age is 40 years.

Table 3: Sex Distribution.

Diagnosis	Male		Female	
	No.	%	No.	%
Appendicular Mass	11	64.7	6	35.29
Appendicular Abscess	1	33.3	2	66.6
Ileocaecal Tuberculosis	3	100	-	
Carcinoma Caecum	3	50	3	50
Retroperitoneal Sarcoma	-	-	1	100
Psoas Abscess	1	33.3	2	66.6
Total	19		14	

In our study appendicular mass (64.7%) was predominantly seen among males whereas appendicular abscess was seen more common among females (66.6%). Ileocaecal tuberculosis was also more common in males (100%), carcinoma caecum was equally seen both in females and males (50%). others was more common in females (66.6%) as compared to males (33.3%).

In our study, all cases of right iliac fossa mass presented with pain abdomen (100%). Hence the commonest presenting symptom was pain abdomen. In our study, 21 cases(63.6%) presented with fever, 12 cases (36.36%) presented with vomiting, 18 cases (54.5%) presented with mass abdomen, 7 cases (21.21%) had weight loss, and 9 cases (27.27%) presented with altered bowel habits.

Table 4: Distribution of Symptoms.

Symptoms	Pain abdomen	Mass abdomen	Fever	Vomiting	Loss of weight	Bowel disturbance
App mass	17	2	10	7	2	2
App abscess	3	2	3	-	-	-
Ileocaecal TB	3	1	3	1	-	1
Ca caecum	6	4	2	3	3	4
Retroperitoneal sarcoma	1	-	-	1	-	-
Psoas abscess	3	2	3	-	2	2
Total	33	18	21	12	7	9
Percentage	100	54.5	63.6	36.36	21.21	27.27

Table 5: Distribution of Clinical Signs.

Clinical Signs	Mass Abdomen	RIF Tenderness	Guarding/ Rigidity
Appendicular mass	7	17	9
Appendicular abscess	2	3	2
Ileocaecal tuberculosis	1	2	-
Carcinoma caecum	1	6	2
Retroperitoneal sarcoma	-	1	-
Psoas abscess	2	3	3
Total	13	32	16
Percentage	39.39	96.96	48.48

In our study, 13(39.39%) cases had palpable mass in right iliac fossa. All cases of appendicular mass, appendicular abscess, retroperitoneal sarcoma and 66.6% cases of ileocaecal tuberculosis had tenderness in right iliac fossa. All cases of appendicular abscess, 53 % cases of appendicular mass, 33.3% cases of carcinoma caecum and all cases of psoas abscess patients had guarding on presentation. 66.6 % cases of ileocaecal tuberculosis and 50% cases of carcinoma caecum had abdominal distension.

Table 6: Haemoglobin Percentage.

Diagnosis	No of Cases	Hemoglobin (gm%)	
		<10	>10
Appendicular mass	17	6	11
Appendicular abscess	3	2	1
Ileocaecal tuberculosis	3	2	1
Carcinoma caecum	6	4	2
Retroperitoneal sarcoma	1	1	-
Psoas abscess	3	-	3
Total	33	15	18
Percentage	100	45.45	54.54

In our study, 45 % of cases of right iliac fossa mass had Hb <10 gm% and 54 % had >10 gm%, and Mean Hb in the study was 9.8 ± 1.36 gm%. In our study, mean Hb in ileocaecal tuberculosis patients was 9.93 gm% and in Carcinoma caecum patients was 9.2 gm%.

Table 7: Investigations

Findings	USG	BA. Studies	CT	C XRAY	ABD XRAY
	No.	No.	No.	No.	No.
Appendicular mass	17	-	-	2	6
Appendicular abscess	3	-	-	-	1
Ileocaecal tuberculosis	3	2	3	-	1
Ca.caecum	6	1	6	-	3
Retroperitoneal sarcoma	1	-	1	-	-
Psoas abscess	3	-	3	-	-
Total	33	3	13	2	11

In this study of 33 cases, most of the patients got abdominal xray and ultrasound abdomen done and all of them were correctly diagnosed.

In this study, X-ray chest done in 2 patients, which showed features of pleural effusion and basal lobar pneumonia in case of appendicular mass. whereas in patients with ileocaecal tuberculosis, it was found to be normal.

2 patients of ileocaecal TB and 1 patient of Ca caecum underwent barium enema study. Of these 2 patients of ileocaecal TB had features suggestive of intestinal TB. The main feature in ileocaecal tuberculosis was pulled up caecum, narrowed terminal ileum with widened ileocaecal angle (obtuse).

Serum ADA measurement done in patients of ileocaecal TB and all were having raised Sr ADA levels (>54U/L) s/o tuberculosis infection.

2 patients of Ca caecum had irregular filling defects. In carcinoma caecum main feature was irregular filling defect with shouldering sign positive. In one study, colonoscopy was done only for one patient and it showed malignant growth in the caecum.

3 Patients of ileocaecal TB, 6 cases of Carcinoma caecum, 3 patients of psoas abscess and 1 case of retroperitoneal sarcoma underwent CT scan abdomen.

Table 8: Modes of Management.

Diagnosis	No. of Cases	Conservative Treatment		Surgical Treatment	
		No.	%	No.	%
Appendicular mass	17	13	76.47	4	23.52
Appendicular abscess	3	-	-	3	100%
Ileocaecal tuberculosis	3	-	-	3	100%
Carcinoma caecum	6	2	33.33	4	66.6%
Retroperitoneal sarcoma	1	-	-	1	100%
Psoas abscess	3	-	-	3	100%
Total	33	15	45.45	18	54.54

In our study of 33 cases 15 cases were managed conservatively and 18 cases were managed surgically. Out of 17 cases of appendicular mass, 3 cases managed surgically by Immediate appendicectomy. Whereas 14 cases were managed initially by Oschner- sherren regimen followed by interval appendicectomy, and 2 cases lost to follow up after Oschner-sherren regimen and did not come for interval appendicectomy.

Of 3 cases of appendicular abscess, 2 were managed surgically by extraperitoneal drainage and one case underwent immediate appendicectomy. Of 3 cases of ileocaecal TB, all were managed surgically. Among them 2 cases under went limited local resection with end to end anastomosis and 1 case under went right hemicolectomy with ileotransverse anastomosis as they presented with symptoms and signs of intestinal obstruction.

Among 6 cases of Ca caecum, 2 was managed with palliative chemotherapy because it was inoperable and others were managed surgically as it was operable. A case of retroperitoneal sarcoma was managed surgically by wide local excision followed by radiotherapy. 3 cases of psoas abscess were reported, which were managed conservatively with extraperitoneal drainage.

Table 9: Types of Surgical Treatment.

Types of Surgery	No. of Cases	Percentage
Interval appendicectomy	13	39.39
Emergency appendicectomy	5	15.15
Extraperitoneal drainage (EPD)	5	15.15
Limited local resection with end to end anastomosis (LLR)	2	6
Right hemicolectomy with Ileotransverse anastomosis	5	15.15
Wide local excision	1	3

In this study, among 17 cases of appendicular mass, 3 underwent immediate appendicectomy and 14 cases were managed by OS regimen initially followed by interval appendicectomy at a later date, and 2 cases were lost to follow up, did not come for interval appendicectomy. 2 cases of appendicular abscess were managed by extraperitoneal drainage followed by delayed appendicectomy, and 1 case was managed by emergency appendicectomy.

Among 3 cases of ileocaecal tuberculosis managed surgically, 2 cases underwent limited local resection with end to end anastomosis, 1 case underwent right hemicolectomy with ileotransverse anastomosis.

Among 6 cases of Carcinoma caecum, 4 cases were managed surgically by right radical hemicolectomy with ileotransverse anastomosis followed by chemotherapy, and remaining were managed conservatively by chemotherapy. A case of retroperitoneal sarcoma was managed surgically by wide local excision followed by radiotherapy. Among 3 cases of psoas abscess, all underwent extraperitoneal drainage followed by antitubercular therapy and two among them reported with wound infection on follow up.

Table 10: Complications and Follow UP.

Post op Complications	No. of Cases	Percentage
Wound infection	6	33.33
Mortality	4	22.22
Total	10	55.5

Table 11: Post Operative Follow UP.

	No. of Cases 25	Percentage 25%
Surgery done	14	56
ATT	4	16
Chemotherapy	2	8
Normal	2	8
Radiotherapy	1	4
Loss to follow up	2	8

Discussion

The aim of the study was to evaluate the clinical features and management of RIF masses presenting to a General Surgeon. This is a study of 33 cases of mass in the right iliac fossa who were admitted to A. J. Institute of medical sciences, mangaluru during the period of October 2018 to May 2020.

Mass in right iliac fossa is one of the most common clinical condition we come across with. Among them, in our study, 61% of cases were related to the appendicular pathology either in the form of appendicular mass (52%) and appendicular abscess.[9] 9% cases were due to ileocaecal tuberculosis, 18% cases were related to carcinoma caecum and remaining 3% cases were of retroperitoneal sarcoma.

In our study Right iliac fossa mass cases presented in varied age group, the youngest patient was of 21 yrs who presented with appendicular mass and oldest was 60 yrs of age who presented with carcinoma caecum.

Overall incidence was more common among males than females with respect to right iliac fossa mass. It was more common among low socio economic group. Pain abdomen being the most common presenting symptom. Fever, mass per abdomen, vomiting, altered bowel habits, abdominal distension, and history of weight loss were the other symptoms.

13% palpable mass in right iliac fossa. Other signs were pallor, icterus, tenderness, rigidity, guarding, abdominal distension and increased bowel sounds.

First investigation of choice was usg abdomen and with sensitivity of 100%. Other specific investigations that were done are barium enema, serum ADA, Colonoscopy, and chest x ray, abdominal xray, CT scan abdomen for evaluation. 45% patients were managed conservatively and 55 % of cases underwent surgery.

Patients with Ileocaecal tuberculosis received category-I ATT regimen for 6 months. Carcinoma caecum and retroperitoneal sarcoma were managed surgically followed by adjuvant chemotherapy and radiotherapy respectively.

Most of the patients had uneventful postope rative period and majority of patients were followed up during course of study period and it was normal in most of the patients.

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Original Article

New Indian Journal of Surgery
Volume 13 Number 1/ January–March 2022
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.13122.2

Gastric Outlet Obstructions and its Management in a Tertiary Care Hospital

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How to cite this article:
Prasad K, Gudla Krishnaveni, Suresh BP/Gastric Outlet Obstructions and its Management in a Tertiary Care Hospital/New Indian J Surg. 2022;13(1):15–19.

Abstract

Background: Gastric Outlet Obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. In adults, mechanical obstruction due to ulcers, tumors or gastric polyps are common causes of gastric outlet obstruction. Until introduction of effective ulcer therapy duodenal ulcer was the commonest cause of gastric outlet obstruction and malignancy was attributed to only 20% of the cases. ***Objectives:*** To study the modes and presentation of presentation of gastric outlet obstruction among patients suffering from Duodenal ulcer diseases. ***Materials and Methods:*** A Hospital based Prospective study was conducted at Tertiary Care Centrefrom October 2017 to September 2019. A total of 100 cases of Gastric outlet obstruction were diagnosed during the study period. An elaborate study of these cases with regard to the history, clinical features, routine and special investigations, pre-operative treatment, operative findings, postoperative management and complications in post-operative period is done. ***Results:*** A total of 100 cases with gastric outlet obstruction were analyzed in our study. Out of the 100 cases with gastric outlet obstruction, 28 (28%) were diagnosed with cicatrizes duodenal ulcer and 72 (72%) of them had carcinoma antrum. Majority of the study subjects presented with pain, vomiting and anorexia on admission. Pallor was seen in nearly 68% of the study subjects followed by 56% of the cases with VGP and 54% with succession Splash. Only 28% of the subjects had palpable mass on palpation. ***Conclusion:*** Upper Gastro intestinal endoscopy should be mandatory in all suspected cases of gastric outlet obstruction. It can diagnose the cause of obstruction very effectively than any other investigative modality. Effective treatment in carcinoma stomach depends on early diagnosis.

Keywords: Gastric Disease; Outlet Obstruction; Endoscopy; Ulcer.

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Received on: 06.01.21
Accepted on: 13.01.22

Introduction

Gastric Outlet Obstruction implies complete or incomplete obstruction of the distal stomach, pylorus or proximal duodenum. This may occur as an obstructing mass lesion, external compression or as a result of obstruction from acute edema, chronic scarring and fibrosis or a combination of both.[1]

Gastric outlet obstruction is not a single entity; it is the clinical and pathophysiological consequence of any disease process that produces a mechanical impediment to gastric emptying.

Gastric Outlet Obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. In adults, mechanical obstruction due to ulcers, tumors or gastric polyps are common causes of gastric outlet obstruction.[2] Until introduction of effective ulcer therapy duodenal ulcer was the commonest cause of gastric outlet obstruction and malignancy was attributed to only 20% of the cases. But, now in the

era of H2 blockers and proton pump inhibitors, incidence of duodenal ulcer has been decreasing as symptomatic ulcer begin to respond to medical treatment, although this has not reflected to changes of complication like bleeding and perforation.[3]

This study has been taken up to review the changes in presentation of gastric outlet obstruction in view of changing trends in the management because of new drugs and investigatory modalities.

Objectives

To study the modes and presentation of presentation of gastric outlet obstruction among patients suffering from Duodenal ulcer diseases.

Materials and Methods

A Hospital based Prospective study was conducted at Tertiary Care Centrefrom October 2017 to September 2019. A total of 100 cases of Gastric outlet obstruction were diagnosed during the study period.

Inclusion Criteria

- Patients presenting with gastric outlet obstruction who are treated on inpatient basis.
- Patients willing for investigations and treatment.

Exclusion Criteria

- Patients aged 20 years and below.
- Patient with recent history of any abdominal surgeries.

An elaborate study of these cases with regard to the history, clinical features, routine and special investigations, pre-operative treatment, operative findings, postoperative management and complications in post-operative period is done.

In history, details were noted about presenting complaints, duration, history of acid peptic disease, features of metabolic disturbances, occupation and personal history including diet, bowel and bladder habits, smoking and alcoholism.

Thorough analysis of the findings of physical examination done, which included hydration status, VGP, mass, succession splash, hepatomegaly and ascites. Associated conditions like anemia, hypertension and diabetes were managed before surgery with physician's advice wherever required.

Hemoglobin level, bleeding time, clotting time, routine urine examination, chest screening, ECG, blood grouping, fasting and post prandial blood sugar, blood, urea, serum creatinine, serum electrolytes were estimated as a part of general work-up for surgery. Special investigations like Upper GI Endoscopy, USG abdomen, CECT abdomen were done.

Management of Cases

Pre-operative treatment included correction of dehydration, metabolic status, anemia, IV H2 blockers; liquid diet and antacids were given along with twice a day stomach wash for a minimum of three days. According to the investigation reports and operative findings, definitive surgery was undertaken.

Surgeries performed

- Truncal vagotomised with gastrojejunostomy
- Billroth II gastrectomy.
- Billroth II gastrectomy with feeding jejunostomy.
- Posterior Gastrojejunostomy.
- Total gastrectomy with Roux-en-Y anastomosis.
- Anterior gastrojejunostomy alone.
- Anterior gastrojejunostomy with limbal anastomosis.

Anaesthesia

For all cases general anesthesia was given.

Post–operative management

The patients were managed by Ryle's tube aspiration and Intravenous fluids till the bowel sounds appeared. Oral feeding with fluids was then commenced, solids being given later. Early ambulation was encouraged, especially in elderly patients. Routine antibiotics were given during the immediate post-operative period. Regular monitoring of the temperature, pulse, respiratory rate and blood pressure was done.

Results

A total of 100 cases with gastric outlet obstruction were analyzed in our study. Out of the 100 cases with gastric outlet obstruction, 28 (28%) were diagnosed with cicatrizes duodenal ulcer and 72 (72%) of them had carcinoma antrum.

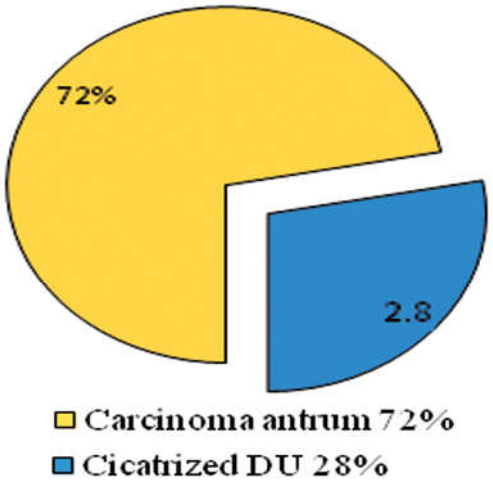

Fig. 1: Causes of Gastric Outlet Obstruction.

Table 1: Demographic characteristics of the study subjects.

		Frequency	Percentage
Age group	20-29	2	2%
	30-39	6	6%
	40-49	20	20%
	50-59	38	38%
	60-69	26	26%
	70-79	8	8%
Gender	Male	72	72%
	Female	28	28%
Occupation	Labourer	44	44%
	Farmers	32	32%
	Housewife	24	24%
Diet	Mixed	90	90%
	Veg	10	10%
Smoking	Present	68	68%
	Absent	32	32%
Alcohol Present	Present	66	66%
	Absent	34	34%

In our study the majority of the cases were in the age group of 50 years and above. Nearly 72% of the subjects were male. 90% of patients were taking mixed diet and 10% patients were taking vegetarian diet. 78 patients (78%) had history of irregular diet habits.

68% of the patients were smokers in this series and 32% were non–smokers. 66% of the patients in this series gave history of consuming alcohol.

Table 2: Signs and Symptoms of the patients presenting as Gastric outlet obstruction.

		Total Number of Cases	Percentage
Symptoms	Pain	96	96%
	Vomiting	96	96%
	Anorexia	84	84%
	Weight loss	72	72%
	Post prandial fullness	68	68%
	Melena	64	64%
	Constipation	48	48%
Signs	Pallor	68	68%
	VGP	56	56%
	Succussion Splash	54	54%
	Palpable mass	28	28%
	Dehydration	62	62%

Majority of the study subjects presented with pain, vomiting and anorexia on admission. Pallor was seen in nearly 68% of the study subjects followed by 56% of the cases with VGP and 54% with succession Splash. Only 28% of the subjects had palpable mass on palpation.

Table 3: Distribution of blood group in Gastric Outlet Obstruction.

Blood Group	Total Number of Cases	Percentage
A	48	48%
B	12	12%
AB	6	6%
O	34	34%

The blood group A was found to be most common blood group among all the study subjects with 48% followed by O blood group of 34% and B group of 12% and AB was seen in only 6% of the study subjects.

Done in all cases. 72 cases of pyloric carcinoma diagnosed and confirmed with biopsy. 28 had cicatrized duodenal ulcer.

Ultra-sonographic examination was Done in all cases. Carcinoma pyloric region with ascites was present in four cases. Ascites with liver secondaries was present in 2 case. The rest showed normal study. In present series, all patients were subjected

to serum electrolyte estimation, out of them 18 patients showed electrolyte imbalance.

All patients underwent pre-operative treatment to get the optimum metabolic status. The pre-operative treatment included liquid diet, liquid antacid and intravenous ranitidine. Stomach wash using no 16 Ryle's tube with normal saline was given twice a day for three days' prior surgery.

Table 4: The types of surgical Procedures underwent by the patients.

Procedure	Number of Cases	Percentage
Truncal vagotomised with Gastrojejunostomy for Duodenal Ulcer	28	28%
Billroth II gastrectomy	6	6%
Roux-en-Y anastomosis after total gastrectomy	8	8%
Anterior gastrojejunostomy with limbal anastomosis	32	32%
Billroth II gastrectomy with feeding jejunostomy	16	16%
Anterior gastrojejunostomy	10	10%

In our study Truncal vagotomy with Gastrojejunostomy was performed on all the 28 cases which had duodenal ulcers, Billroth II gastrectomy was done in 6 cases and Roux-en-Y anastomosis after total gastrectomy was perfomed on 8 cases. Anterior gastrojejunostomy with limbal anastomosis was done on nearly 32 cases. Billroth II gastrectomy with feeding jejunostomy was done on 16 cases and Anterior gastrojejunostomy was performed in 10 cases.

All the patients were kept nil orally and on Ryle's tube aspiration for duration varying from 3 to 10 days. Oral sips were allowed after removal of Ryle's tube. IV fluids were stopped on the 5th to 10th post-operative day and patients started on semisolid diet. The patients were put-on broad-spectrum antibiotics, intravenous H2 receptor blockers and analgesics.

Post-operative complications

Wound infection developed in two patients who were treated by repeated dressing and appropriate antibiotics. In four patients' respiratory tract infection developed which was treated by chest physiotherapy and review of antibiotics. 30 patients of antral carcinoma were treated postoperatively by chemotherapy with 5-fluoro uracil. Rest of the patients had an uneventful post-operative period. Post-operativehospitalization ranged from 7 to 40 days with an average of 11 days.

Discussion

The commonest cause of gastric outlet obstruction is carcinoma of pyloric antrum. The next commonest cause is cicatrized duodenal ulcer. These observations reveal that the incidence of gastric outlet obstruction secondary to chronic duodenal ulcer has come down while that of malignancy has relatively increased.

In this study most, patients were in the sixth and seventh decade. In chronic duodenal ulcer cases the maximum incidence seen in the age group of 31-40 years. The average age being 47.52 years with a span from 22 to 73 years. Men outnumbered women by 10.5:1. In the series of Fisher et al.[4] the average age was 54 with a span from 20–89 years and men outnumbered women by 2:1.

52% of the patients were manual laborers who gave a history of irregular diet habits, which seemed to contribute to disease process. The series of Donald D. Kozoll and Karl A. Meyer[5] also showed the same pattern with the non-skilled day laborer group listed most frequently with obstruction.

In this series 68% of patients had history of smoking and 66% had history of alcohol intake. Donald D. Kozoll and Karl A Meyer[5] reported this to be 76.2 and 52.3% respectively. This points to the commonly observed fact that a higher incidence of use of alcohol and tobacco is seen in these patients and are significant risk factors.

Post–prandial vomiting and epigastric pain are the main symptoms (96%) in this series. Vomiting is usually spontaneous and projectile type containing partially digested food particles. Other symptoms included anorexia (84%), weight loss (72%), post prandial epigastric fullness (68%), haematemesis (24%), melena (64%) and constipation (48%). In the series of Michael L. Schwartz et al.[6] post prandial vomiting was the commonest symptom (91%). Other symptoms included epigastric pain (86%) and weight loss (52%).

In the series of Yogiram and Chowdhary[7] epigastric pain was the commonest symptom (87%). Other symptoms included post–prandial vomiting (80%) and constipation (30%). Keith A. Kelly[8] in his series, reported intractable vomiting and weight loss in 54% of patients and upper gastro intestinalhemorrhage in 34%. Weight loss was seen in 59.5% of patients in the series of Donald D. Kozoll and Karl A. Meyer[5] and 32% in the series of Harvey J, Dworken and Harold P. Roth.[9] Thus weight loss seemed to be significant in patients with pyloric obstruction and this points to the long standing nature of the disease and the need for

proper pre-operative nutritional supplementation in these patients.

The surgical procedures done in our study were based on type, stage and site of the disease. All the surgical procedures done in our study were as per the standard protocols.[10-12]

Conclusion

The commonest causes of gastric outlet obstruction in adults are carcinoma stomach with antral growth producing gastric outlet obstruction (52%) and cicatrized duodenal ulcer (46%). majority of cases, the diagnosis can be established clinically. Upper Gastro intestinal endoscopy should be mandatory in all suspected cases of gastric outlet obstruction. It can diagnose the cause of obstruction very effectively than any other investigative modality. Effective treatment in carcinoma stomach depends on early diagnosis.

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Original Article

New Indian Journal of Surgery
Volume 13 Number 1/ January–March 2022
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.13122.3

Current Trends in the Management of Lower Limb Amputations

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How to cite this article:
Sushanth PT, Anchita Bhattacharya, Padmanabh Bhat/Current Trends in the Management of Lower Limb Amputations/New Indian J Surg. 2022;13(1): 21–26.

Abstract

Background: Lower limb amputation is a major but preventable public health problem in a developing nation such as India. It is a burden for the patients as well as their families not only economically but also socially and psychologically. The duration of treatment lasts from a few days to several months and depends on the extent of disease, level of amputation and patient's comorbid status. The purpose of this study is to outline the demographics, various indications and the complications of lower limb amputations, the newer interventions in the management of lower limb amputations and to evaluate our experience in managing such patients presenting at a tertiary care hospital in South India.

Methodology: This is a prospective study done between the period of December 2019 and December 2020 at Sapthagiri Medical College and Research Centre, Bengaluru, Karnataka, India. All patients undergoing lower limb amputation during this time period were included in the study.

Results: A total of 50 patients were included into the study. Majority of the patients were males (72%). The most common indication for major limb amputation is peripheral arterial occlusive disease (PAOD) 50% and Diabetic foot in 36.96%. Below knee amputation was the most common procedure performed in 52.17%. The most common additional procedures performed were wound debridement in 23.91%, secondary suturing in 19.57%. Revision amputation rate was 8.7%. Post-operative complication rate was 39.13% and surgical site infection was the most common complication accounting for 17.39%. 8% of the patients underwent vascular interventions which prevented major limb loss.

Conclusion: Diabetic foot and PAOD of lower limbs that progressed to gangrene are the most common indications for lower limb amputations, majority of which can be prevented by health education and early presentation. Appropriate management by applying newer trends such as vascular intervention can help in reducing morbidity.

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Received on: 15.11.21
Accepted on: 11.01.22

Introduction

Lower Limb amputation is one of the most ancient of all surgical procedures with a history of more than 2500 years dating back to the time of Hippocrates.[1,2,3] India is a vast country with a large number of individuals in the community with various disabilities. It had been estimated that there are roughly 0.62 amputees in India per thousand population.[4,5] According to the census of India 2011, out of the total population having disabilities, 20.3% belong to the category of disability in movement. The most common indications for amputation vary

from study to study. Trauma, complications of diabetes mellitus and peripheral vascular disease are some of the most common indications that are recorded.[6] Complications of diabetes mellitus is widely accepted as the most common cause for major limb amputation with figures ranging from 25% to 90% depending on the study.[7]

This is followed by non-diabetic vascular insufficiency and trauma.[8-10] Lower Limb amputation is considered the last resort when limb salvage has failed or when the limb is non-functional or endangering the patient's life i.e., sepsis.[2] The loss of a limb for any individual, has profound economic, social and psychological effects on the patient and their family.[11-14]

Risk factor modification, optimal medical therapy, and supervised exercise are the first line therapies for patients with intermittent claudication. However, revascularization is a critical component of treatment for individuals with severe symptoms or CLI. The different treatment goals of intermittent claudication and CLI have direct implications for the timing and choice of vascular interventions.[15]

This study focuses on the various indications, demographics and complications of lower limb amputation as well as newer strategies in the management of lower limb amputation at a tertiary care hospital in south India.

Methodology

It was a prospective study done between the period of October 2019 and December 2020 at Sapthagiri Medical College and Research Centre, Bengaluru, Karnataka, India. All cases of lower limb amputation done in the Department of General Surgery during this time period were included in the study.

Patients were recruited into the study after the decision to amputate the limb was made by the attending surgeon. The decision to amputate the limb, indications and levels of amputation were decided by the attending surgeon based on clinical evaluation and radiological investigations such as X-ray, CT Angiogram and doppler studies. A portion of the patients underwent lower limb revascularisation procedures. All patients' informed consent was taken before enrolling them into the study.

All surgeries were conducted under spinal anaesthesia. Above knee amputations were carried out using fish-mouth incision and below-knee amputations were carried out by the Burgess technique (long posterior myocutaneous flap) drains were placed in all cases and slab was applied. On post-operative day 4; dressing was removed and patient was made to mobilise and dressing done. Regular dressings were done in the post-operative period and in case of any post-operative complications like surgical site infection, stump gangrene or wound dehiscence, necessary measures were taken. Patients were subjected to regular physiotherapy in the post-operative period. All patients were followed for 3 months post discharge.

Results

A total of 50 patients underwent lower limb amputations during the period of this study. The age group ranged from 21 years to 75 years. Maximum number of amputations were done in the 40-60 years age group (56%) followed by 60-80 years age group (36%), (Table 1). Of these, 36 patients (72%) were male and 14 (28%) were female (Figure 1).

Table 1: Age Distribution.

Age Group	Frequency	Percentage
20 - 40 yrs	4	8
40 - 60 yrs	28	56
60 - 80 yrs	18	36
Total	50	100

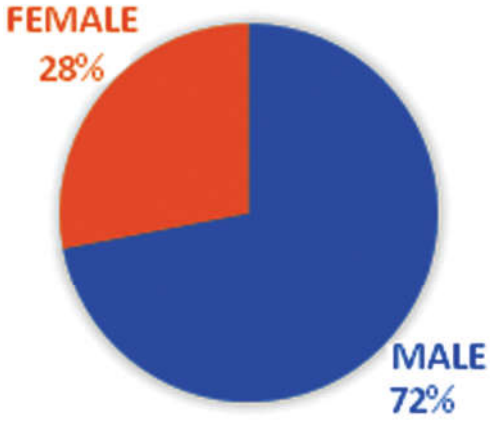

Fig. 1: Gender Distribution.

The most common procedure carried out was below knee amputation (52.17%). Above knee amputation was done in 21.74% of the cases, forefoot amputations in 4.35% cases, Ray's amputation in 8.7% cases and the remaining 13.04% cases underwent disarticulation of toes. (Figure 2).

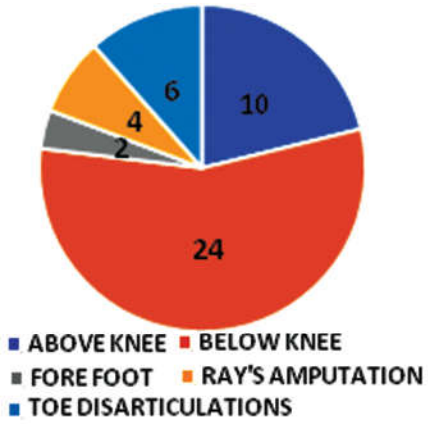

Fig. 2: Levels of Amputation.

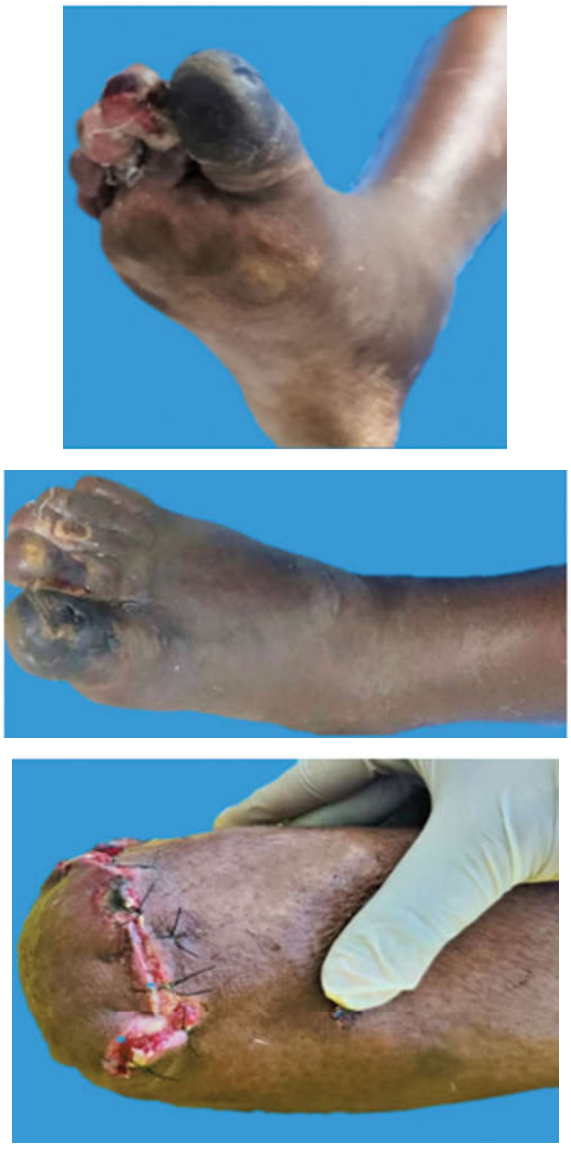

Fig. 3: Picture: Dry gangrene of the right foot. On examination, dorsalis pedis artery, anterior tibial artery and posterior tibial artery pulsations were absent. Patient underwent below knee amputation.

Peripheral arterial occlusive disease (PAOD) was the main indication for the majority of the lower limb amputations in 25 (50%) patients, followed by complication of diabetes mellitus in 17 cases (36.96%) and trauma in 4 cases (8.70%). (Table 2)

Table 2: Indications for Amputation.

Indication	Frequency	Percentage
Paod	23	50
Diabetic Foot	17	36.96
Trauma	4	8.70
Other	2	4.35
Total	46	100

Out of the total number of amputees; 32 (64%) were tobacco consumers out of which 18 were tobacco smokers (bidis/cigarettes), 6 were tobacco chewers and 8 were both tobacco smoker and chewer. (Table 3)

Table 3: Tobacco Consumers.

Consumers	Frequency	Percentage
Smokers	18	56.25
Chewers	6	18.75
Both	8	25
Total	32	100

Post-op complications were seen in 18 cases (39.13%). The most common complication encountered was surgical site infection which was seen in 8 cases (17.39%). 4 patients (8.7%) developed wound dehiscence and 4 patients (8.7%) developed flap necrosis. 2 patients (4.35%) complained of phantom pain (Table 4). Pus from the surgical site was sent for culture sensitivity and the most common organism cultured was Staphylococcus aureus, seen in 66.67% of the cases. (Figure 4).

Table 4: Post-Operative Complications.

Complication	Frequency	Percentage
SSI	8	17.39
Flap Necrosis	4	8.7
Phantom Pain	2	4.35
Wound Dehiscence	4	8.7
None	28	60.87
Total	46	100

Additional procedures like wound debridement and secondary suturing were done in 23.91% and 19.57% cases respectively. Revision of stump was done in 4 (8.7%) cases and 6 patients (13.04%) underwent split skin grafting at a later stage. (Table 5).

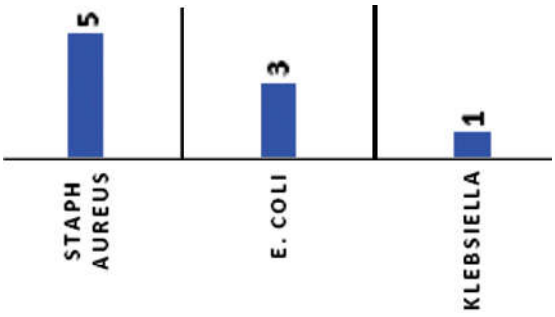

Fig. 4: Bacteriological Culture.

Table 5: Additional Procedures.

Additional Procedures	Frequency	Percentage
Stump Revision	4	8.7
Secondary Suturing	9	19.57
Split Skin Grafting	6	13.04
Wound Debridement	11	23.91
No Additional Procedures	16	34.78
Total	46	100

A total of 4 patients underwent revascularisation procedures. One patient underwent femoral artery thrombectomy, another underwent popliteal artery thrombectomy. Two patients underwent PTA. On follow up, the patients had good peripheral pulses and their symptoms were resolved (Table 6).

Table 6: Vascular Intervention.

Procedure	Frequency	Perccentage
PTA	2	50
Thrombectomy	2	50
Total	4	100

Discussion

Limb amputation was first described by Hippocrates in 460–377 BC and has since been a common surgical procedure performed by orthopaedic, general, vascular and trauma surgeons for therapeutic reasons and to save patients lifes. However, it is associated with profound economic, social and psychological effects on patients as well as their families.[1,2,3] According to Metz[16], the global prevalence of disability is 4% in developing countries and 7% in industrialized countries. The prevalence of disability in India according to a census report in 2001 is 1.8-2.2%.[17,18]

The male preponderance among amputees in our study (72%) is in agreement agrees with the findings by other authors.[11,12,19-21]

Majority of our patients were in the 40-60 years age group (56%) which is comparable with other studies.[3,11,21-23] Other studies reported even lower peak age incidence[24,25] which may be due to variation in the cause and patterns of amputation which tend to vary between hospitals in the country and between countries.

The causes of amputation in different countries are influenced by the standard of medical care available.[18] In our study, PAOD progressing to gangrene was the most common indication for major limb amputation (50%), followed by complications of diabetic foot ulcer (36.96%). This is against the trend of complications of diabetic foot ulcers being the most common cause of lower limb amputations as reported in other series.[22,25-28] This may be because tobacco consumption rates are high in India. According to Global Adult Tobacco Survey (GATS) carried out in India by MOHFW for 2019-2020, 34.6% adults are tobacco consumers out of which 47.9%are males and 20.3% are females. Amongst these 14% adults are tobacco smokers and 25.9% adults are users of smokeless tobacco.

In agreement with other studies[3,11,18,24] below knee amputation was the most common procedure performed (52.17%). Many other studies reported above knee amputation as the most common procedure performed as compared to below knee amputation.[10,21,24,30] Late presentation with spreading gangrene or advanced diabetic foot gangrene or malignant lesions involving the underlying bones may be the reason to opt for a higher level of amputation.[3,26,31,32]

The complication rate (39.13%) in our study is lower in comparison to other studies by Essoh et al.[11], Unnikrishnan E. P et al.[10] Surgical site infection was the most common complication in the present study and Staphylococcus aureus was the most common organism cultured. Similar microbiological trend was also reported by other authors.[11,21]

Rate of re-amputation in our study was 8.7%. This was lower than the rate of re-amputation noted in studies by Essoh et al[11] (23%) and Chalya et al[3] (9.9%). These differences in re-amputation rates may be due to presentation at a late stage with advanced disease.

Advances in imaging and endovascular technologies have greatly expanded the treatment options for patients with advanced PAOD. Patterns of occlusive disease in these patients are typically categorized by anatomical location as aortoiliac, femoropopliteal or infrapopliteal PAOD. The technical challenges and expected outcomes of revascularization treatment are strongly influenced

by both disease severity and anatomical location. Revascularization of short lesions in large vessels yields more favourable outcomes than large lengths of occlusion, more distal (infrapopliteal) disease, and involvement of smaller calibre arteries.[15]

A study by Jahyung Kim et al[33] quoted that between 2011 and 2016, the proportion of minor amputations among patients who underwent vascular intervention significantly increased from 19.34% to 21.45%, while the proportion of major amputations significantly decreased from 9.88% to 4.27%. This indicates that endovascular intervention has a role to play in lowering the level of amputation from a more morbid major amputation to a more acceptable and better adjustable minor limb amputation.

Conclusion

Complications of vascular insufficiency and diabetes mellitus are the leading indications for lower limb amputations. Most patients present at a late stage when gangrene has set in and are in the need of amputation. Diabetic patients need to be educated at an early stage of their disease regarding the potential complications of diabetes as well as the need to maintain proper glycaemic control and the importance of protective footwear. Patients with vascular insufficiency should be educated regarding the problems associated with smoking and tobacco consumption and should be encouraged to discontinue the same. All these measures will help prevent major amputation in an otherwise salvageable lower limb.

The use of endovascular interventions has played a major role in decreasing the number of major lower limb amputations in recent times and play a key role in the management of symptomatic patients who present early with salvageable limbs.

In the acute post-operative period, complications like SSI and wound dehiscence lead to prolonged hospitalization or readmission causing delays in early rehabilitation and prosthetic fitting thus influencing the patient's abilities to perform daily activities. Negative Pressure Wound Therapy (NPWT) in such cases helps expedite wound healing. It acts as a soft tissue splint to reduce tension on the incision line, decreases post-operative tissue oedema and ultimately seroma and hematoma formation.

Following amputation, early physiotherapy and appropriate prosthesis application are needed to achieve early rehabilitation raising a person's capacities to the maximum, reducing dependencies and improving the quality of life after disablement.

Hence, majority of these lower limb amputations can be prevented by health education and early presentation and appropriate management by applying newer trends such as vascular intervention and post-operative wound care and early rehabilitation can help in reducing morbidity.

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Original Article

New Indian Journal of Surgery
Volume 13 Number 1/ January–March 2022
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.13122.4

Correlation between Gallstones and Hypothyroidism: Our Experiance

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How to cite this article:
Narayanaswamy T, Prajwal RK/Correlation between Gallstones and Hypothyroidism: our Experiance/New Indian J Surg. 2022;13(1):27–29.

Abstract

Background: Among biliary pathology, Gallbladder Stones are the most common. There are well established risk factors associated with formation of Gallstone. Since Biliary motility is affected by thyroid hormone, Patients with hypothyroidism will have Gallbladder Hypokinesia and deranged lipid metabolism leading to formation of Gallstones.

Aims & Objectives: The aim of this study is to find out the hypothyroidism is a risk factor in formation of specific type of Gall stone.

Methods: A total of 50 patients with gallstone disease were included in the study. Thyroid function tests were performed in all of them. And divided in to two group, Group-A 25 Euthyroid patients and Group-B 25 Hypothyroid patients and morphological type of gallstones assessed post operatively (Pigment or Cholesterol stones).

Results: Of the 50 patients included in the study, Group A patient had 18 Pigment stones and 7 Cholesterol stones in Gallbladder and Group B patient had 15 Pigment stones and 10 Cholesterol stones in Gallbladder. On Statistical analysis, the p-value is 22067. The result is not significant at $p<.05$.

Conclusion: Gallstones are more common in patient with hypothyroidism compared to general population but hypothyroidism does not promote any specific type of stone formation. Which suggest that Hypothyroidism is not the individual risk factor for gallstone formation.

Keywords: Cholelithiasis; Hypothyroidism; Pigment stones; Cholesterol stones; Gallstones; Biliary stones.

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Received on: 15.11.21
Accepted on: 11.01.22

Introduction

Biliary stones are one of the commonest conditions seen in surgical practice. There are multiple risk factors and mechanisms of formations of Biliary stones. Of which Hypothyroidism being risk factor is under study with positive results.[1] Cholesterol stones are formed by supersaturation of bile with cholesterol. Pigment stones are formed by supersaturation of unconjugated bilirubin within the bile. Hypothyroidism induces cholesterol gallstone formation by promoting cholesterol biosynthesis.[2] In this study we are evaluating whether Hypothyroidism promotes any particular type of gallstones.

There are various possible relations between hypothyroidism and biliary stone formation.

Hypothyroidism Reduces Bile Flow into the Duodenum[3], Hypothyroidism Leads to Impaired SO Relaxation[4], hypothyroidism causes decrease in liver cholesterol metabolismwhich results in supersaturation of bile cholesterol.[5]

Materials and Methods

This is a cross-sectional, observational study performed at Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru over the period of one year from January 2018 till December 2018, this study included 50 patients, with cholelithiasis or choledocholithiasis diagnosed by ultrasound abdomen, who were admitted for the management of Biliary stone disease, in the department of general surgery. We have excluded patient with hemolytic disorders, liver disorders and patient underwent thyroid surgery.

All the patients underwent general preoperative Investigations including Thyroid function test, and patients were categorized in to two groups i.e. Group-A Euthyroid patients and Group-B Hypothyroid patients. As per hospital reference values, patients with thyroid stimulation hormone (TSH) between 0.27 and 4.2 IU/ml were considered euthyroid, TSH >4.2 as hypothyroid. Postoperative data regarding type of stone (pigment or cholesterol) in each patient collected.

Results

The study included 50 patients with biliary stones, and divided into two groups. The majority of them were in 20–40 years age group, the mean age of patients was 45 years. Group-A includes 25 patients with normal thyroid function test and group-B included 25 hypothyroid patients. Out of 25 Group-A patients, 18 patients had Pigment stones and 7 Cholesterol stones in Gallbladder and Group B patient had 15 Pigment stones and 10 Cholesterol stones in Gallbladder.

Chart 1: Age and sex distribution.

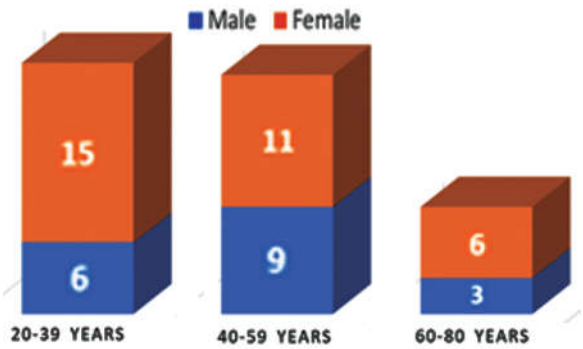

Table 1: Type of stone in each group.

	Group A (Euthyroid)	Group B (Hypothyroid)
Pigment stones	18	15
Cholesterol stones	7	10

The $\chi 2$ value is 1.5. The p-value is .22067. The result is not significant at $p<.05$.

Discussion

Several studies have been conducted in the past to understand the relation between thyroid function and cholelithiasis.[6-8] The present study was conducted to know whether Hypothyroidism promotes any specific type of gallstones. To our knowledge none of the existing studies have taken type of stone into consideration.

In our study we did included 50 patients with Biliary stone disease and divided them in Euthyroid and Hypothyroid group and data were compared and statistically analyzed. We have used chi square test and results were obtained, the $\chi 2$ value is 1.5. The p-value is .22067. The result is not significant at $p<.05$.

Hence based on above findings, it shows that hypothyroidism does not promote either cholesterol or pigment stone in particular.

Conclusion

There was no relation between hypothyroidism and cholesterol stone, compared to euthyroid group. The patients with hypothyroidism may have more prevalence of biliary stones but not any particular type of stone.

Ethical approval

Yes, Ethical Approval and patient consent under supervision of institutional ethical comette, Kempegowda Institute of Medical Sciences and Research Centre, K.R Road, VV Puram, Bangalore, Karnataka Pin: 560004, India

Sources of funding: There is no funding for my research.

Conflicts of interest: There is no conflict of interest.

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Original Article

New Indian Journal of Surgery
Volume 13 Number 1/ January–March 2022
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.13122.5

Prevalence of Common Upper GI Diseases on Esophagogastroduodenoscopy

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How to cite this article:
Prasad K, Pavan Kumar S, Suresh BP/Prevalence of Common Upper GI Diseases on Esophagogastroduodenoscopy/ New Indian J Surg. 2022;13(1):31–35.

Abstract

Objective: To document and correlate different indications and findings of EGD scopyin our endoscopy unit.

Methods: A retrospective descriptive study of 519 patients who underwent Esophagogastro duodenoscopy (EGD scopy) was conducted in the Endoscopy Unit of Department of General surgery of Tertiary Care Centre. Included patients underwent EGD scopy. Demographic data including indications and endoscopic findings of the patients were collected via study proforma.

Results: Total five hundred and nineteen patients were studied; Out of all 64.54% were males and 35.06% were females. Epigastric pain or pain abdomen was the commonest indication (41.23%) followed by dysphagia (13.48%), Hematemesis (10%), vomiting and regurgitation, screening (9.05% and 7.51% respectively). The most common endoscopic findings were gastritis (35.45%), GERD (9.82%), Varices (9.02%), Carcinoma (7.32%), GI Ulcer (5.78%), hiatal hernia (5.58%), stricture (3.08%) and normal (20.03%).

Conclusion: The most common indication was Epigastric pain or pain abdomen for EGD scopy and indications were relevant to findings.

Keywords: Esophagogastroduodenoscopy; Endoscopy; Upper GI diseases; Acidity.

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Received on: 06.01.21
Accepted on: 13.01.22

Introduction

Upper gastrointestinal (UGI) complaints among other abdominal issues are associated with considerable morbidity and mortality ranging from 2% to 33%.[1,2] EGD scopy has a better diagnostic yield than radiology andalso has therapeutic potential for gastrointestinal disorders.[3] Among UGI complaints, bleeding is a fatal medical emergency with a multitude of causes globally, including esophageal varices, gastric erosions, peptic ulcer, and mucosal tear.[4]

Endoscopic services are yet not readily accessible in most of the healthcare facilities in and around the Institute as we have huge dependent rural population. As the number patients undergoing the procedure is increasing. We therefore aim to perform a study to document indications and endoscopic findings in patients undergoing EGD scopy at a Subbiah Institute of Medical Sciences, Shivamogga, which has a large number of referrals from around the region.

Materials and Methods

This was a study conducted at the Department of General surgery of Tertiary Care Centre. 519 patients were recruited over a period of 24 months who were referred from inpatient, outpatient, and emergency department.

Demographic characteristics including age, gender, indications, endoscopic findings, and the type of therapeutic intervention in patients were gathered on the structured proforma. The endoscopy was performed using endoscope. Lignocaine (4%) gargles were used for local analgesia before the procedure.

Patients were kept fasting over-night or 6 hours nil per oral. Pharyngeal spray with 10% xylocaine is sprayed topical before the procedure. Endoscopy was carried out by flexible fiberoptic esophagogastroduodenoscopy (Olympus) by placing patient inleft lateral position.

A mouth guard was used to protect the instrument. Lubricated instrumentwas passed over the backof thetongue and under direct vision into the esophagus. Subsequently the endoscope was advanced with clear view of lumen.

During the whole procedure, examination of esophagus, stomach and duodenum was done to look for abnormal areas in the form of swelling, ulcer, growth, fibrosis, bile reflux, varices and gastroesophageal reflux and were evaluated properly and biopsy was taken from suspicious areas and wherever required. Before withdrawal of endoscope from stomach, air and gastric contents were aspirated. The whole procedure is recorded by photography and videography for documentation and further follow-up.

Inclusion criteria

Patients above the age of 16 years with stable general conditions presenting with dyspepsia, dysphagia, odynophagia, nausea and vomiting, pyrosis, occult GI bleeding, cirrhosis (both outpatients and patients referred from other hospitals) as shown in table 1, pie chart 1.

Exclusion criteria

- Patients <16 years.
- Massive upper gastrointestinal bleeding.
- Corrosive poisoning.
- Unconscious and unstable patient.

Results

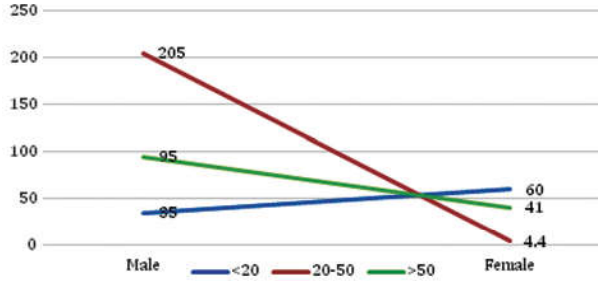
There were 335 (64.54%) males out of the total 519 patients. 311 (59.92%) patients were referred from the outpatient department while the rest were from different inpatient departments. Pain abdomen and Epigastric pain was the commonest indication (n=214; 41.23%) followed by dysphagia representing 70 (13.48%) patients. Other common endoscopic indications have been shown in Table 1.

Table 1: Distribution of Indications with gender.

	Male(n)	Female(n)	Total
Pain abdomen/ Epigastric pain	134	80	214;(41.23%)
Dysphagia	60	10	70;(13.48%)
Hematemesis	46	17	63;(12.13%)
Vomiting	26	21	47;(9.05%)
Regurgitation	27	12	39;(7.51%)

The most common findings were gastritis (35.45%) GERD (9.82%),esophageal varices (9.02%), followed by other findings and normal study (20.03%) as shown in table 2, pie chart 2.

Graph 1: Graph wise distribution of Age and gender.



Graph 2: Graph wise distribution of Indications of Surgery.

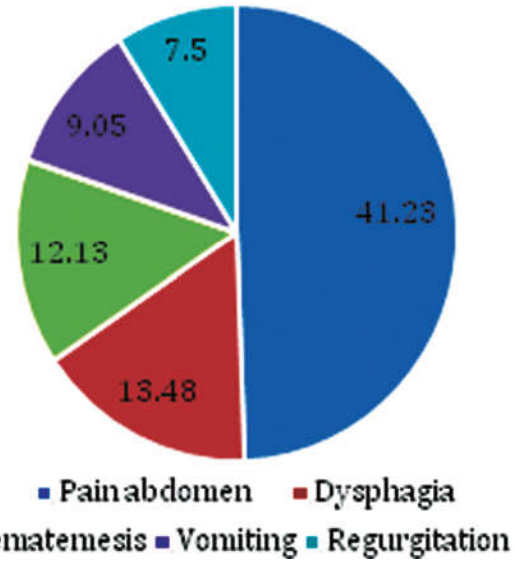


Table 2: Endoscopic findings with Gender wise distribution.

	Male(n)	Female(n)	Total
Gastritis	117	67	184;(35.45%)
Normal	58	46	104;(20.03%)
GERD	35	16	51;(9.82%)
Varices	34	13	47;(9.05%)
Carcinoma	23	15	38;(7.32%)
GI ulcer	25	5	30;(5.78%)
Hiatus hernia	20	9	29;(5.58%)
Stricture	14	2	16;(3.08%)

Graph 2: Graph wise distribution Endoscopic Findings.

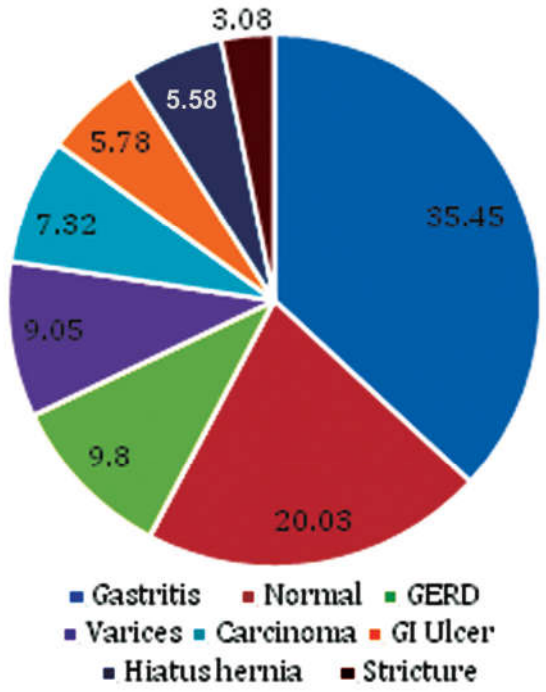


Table 2: Distribution of study subjects based of Combination of pathologies.

	Male(n)	Female(n)	Total(n)
GERD+Hiatus hernia	15	9	24
GI Ulcer+haemorrhage	9	6	15
GI Ulcer +stricture	4	2	6

Discussion

Upper GI endoscopy is a quick and cost-effective diagnostic tool for a wide variety of upper gastrointestinal disorders. In addition to its diagnostic potential, it also has the establishedtherapeutic role for various disorders.

The clinical indications for EGD scopy is, patients presenting with upper GI symptoms which includes upper abdomen pain, heart burn that's refractory to treatment, dysphagia, hematemesis, weight loss, anemia, foreign body ingestion. Thereis noabsolute contraindication for upper gastrointestinal endoscopy in our study. Major complications suchas perforation or aspiration are rare, occurring in less than 1 per 1000 cases[5] nil in our study. In this study, GI symptoms were found more common in males (60%) compared to females (40%).

This might be due to alcoholism; smoking and lifestyle factors are more common in males compared to females. The presentstudy found that majority of patients with upper gastrointestinal symptoms were diagnosed to have gastritis which was found alone or found to be co-existing with other pathologies like esophagitis, GERD, hiatus hernia followed by reflux esophagitis, carcinoma esophagus and stomach, gastric ulcer and duodenal ulcer.

Other findings were gastric outlet obstruction and foreign body. Gastritis is a condition in which the mucosa lining the stomach is inflamed, or swollen that can be acute or chronic. Common cause for gastritis is Helicobacter pylori infection, damage to the stomach lining, which leads to reactive gastritis.

Peptic ulcer disease is erosions in gastric or duodenal mucosa that extends through muscular is mucosa. Common causes are infection with H. pylori and use of no steroidal anti-inflammatory drugs. If untreated it may lead to complications like bleeding, perforation, gastric outlet obstruction, giant gastric ulcers, refractory ulcers and malignant transformation may also occur. UGI endoscopy is more sensitive and specific for peptic ulcer disease and allows biopsy of gastric lesions.[6]

Perforation in peptic ulcer disease occurs in approximately 2 to 10 percent of peptic ulcers. It most commonly involves the anterior wall of the duodenum 60%, however it may also occur in antral 20% and lesser-curvature 20%. Hollow viscus perforation and resulting chemical and bacterial peritonitis is a surgical emergency that can cause sudden and rapid deterioration of general condition and requires immediate surgical intervention laparotomy and placement of an omental patch (Graham patch plication). In otherwise healthy patients with a history of chronic ulcer and minimal peritoneal contamination, definitive anti-ulcer procedure (vagotomy and drainage, highly selective vagotomy) may also be considered. Perforated gastric ulcers are treated with an omental patch, wedge resection of the ulcer, or a partial gastrectomy and re-anastomosis.[6]

5-8% of patients of peptic ulcer disease presents with gastric outlet obstruction. UGI endoscopy is recommended to determine the site, cause, and degree of obstruction.[6] Biopsy was taken from the site to evaluate for the cause and found to be benign in nature. Patients were managed conservatively with nil per oral, nasogastric tube insertion for decompression and regular saline wash to reduce the oedema.

On subsequent endoscopic studies, edema reduced and the obstruction was relieved. Gastro esophageal reflux disease (GERD) is the most common benign disorder of stomach and esophagus, which occurs when there is retro-grade flow of gastric contents through lower esophageal sphincter (LES), which results from the failure of endogenous anti-reflux mechanisms. GERD most commonly manifest as heart burns, which can gradually worsen causing complications like strictures, ulcers, metaplasia, dysplasia, carcinoma and pulmonary disease.[7]

Patients with GERD were sent for manometry studies and followed up with gastro-enterologist advice. Gastric cancer is the 14th most common cancer and second leading cause of death from malignant disease worldwide, with especially high mortality rates. 90% of stomach tumors are adenocarcinomas, which are subdivided into two main histologic types as well-differentiated or intestinal type and undifferentiated or diffuse type.

Multiple factors play role in etiology of gastric cancer, more than 80% of cases have been associated with H. pylori infection. Other risk factors includes diet, genetic, socioeconomic, polyps and proton pump inhibitors also attributes to gastric carcinogenesis.[8] Carcinoma esophagus is the sixth leading cause of cancer-related mortality and the eighth most common cancer worldwide. Squamous-cell carcinoma is the predominant form of esophageal carcinoma worldwide and others forms are adenocarcinoma, mesenchymal tumor, neuroendocrine tumour and benign tumours. Tobacco and alcohol are strong risk factors and others include achalasia, socioeconomic, GERD, Barrett's esophagus.[9] Patient with malignant changes found during endoscopy, adequate tissues (6 to 8) were taken from suspicious site and send for biopsy.

Herniation of the contents of the abdominal cavity most commonly the stomach is referred as hiatus hernia, through the esophageal hiatus of the diaphragm into the mediastinum. GERD is the main clinical manifestation of hiatus hernia. Other symptoms associated with hiatus hernia are reflux esophagitis, Barrett's esophagus and esophageal adenocarcinoma.

Hiatus herniais of three types which are type 1 (sliding) hiatus hernia, which is the commonest and accounts for about 90%, type 2 (para-esophageal or rolling) hiatus hernia and type 3 are mixed types I and II i.e., with a sliding element to the type II hernia.[10]

Endoscopy plays a significant role in the diagnosis of hiatus hernia. Varices are dilated sub-mucosal veins, that commonly occurs as consequences of portal hypertension. Mortality after an index hemorrhage in patients with varices is as high as 50% and with subsequent bleeding it's 30% mortality rate. Endoscopy plays an essential role in the management of varices as it identifies patients in initial stage and helps to prevent variceal hemorrhage and helps to initiate specific therapies such as banding and sclerotherapy.[11] Foreign body ingestion is one of the rare indication seen in our practice such as accidental swallowing fish bone. In some studies10-20% of ingested foreign bodies require treatment.

Incidence of complications caused by foreign bodies in the upper gastrointestinal tract is 15-42%, that varies with time, higher the complications, longer the foreign bodies had been impacted. Complications were observed in 60% of foreign bodies that had been impacted for 48-72h and 10.5% of those impacted for up to 24h. These complications may vary from mild such as erosions superficial lacerations, oedema, hematoma, and mild respiratory complications to severe forms such as perforation (most frequent), and hemorrhage resulting from injury to large vessels that could be fatal.[12,13] UGI endoscopy is a safe and effective tool that helps in early removal of foreign bodies from the upper gastrointestinal tract.

The high incidence of Gastritis could be due to more Alcohol consumption, UGI bleeding due to esophageal varices could be attributed to the end-stage liver diseases due to cirrhosis and also possibly due to alcoholism.[14,15] Whereas a comparatively lower incidence of peptic disease as a cause of UGI bleeding could be attributed to the common prescription of PPI and other acid-suppressive therapy by primary care physicians.

Conclusion

Upper GI endoscopy is one of the most essential tools to evaluate gastrointestinal disorders with both diagnostic and therapeutic potential. In this

study we found out that indications and findings were almost matching and appropriate because prior to procedure patients were subjected thorough questioning and physical examination by attending consultants as we found on records. When compared to previous studies, upper abdomen pain abdomen and heart burn as the most common indication for the procedure and Gastritis and GERD were found to be the leading underlying pathology in the present study.

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STATEMENT ABOUT OWNERSHIP AND OTHER PARTICULARS

New Indian Journal of Surgery" (See Rule 8)

1.	Place of Publication	:	Delhi
2.	Periodicity of Publication	:	Quarterly
3.	Printer's Name	:	**Dinesh Kumar Kashyap**
	Nationality	:	Indian
	Address	:	3/259, Trilokpuri, Delhi-91
4.	Publisher's Name	:	**Dinesh Kumar Kashyap**
	Nationality	:	Indian
	Address	:	3/259, Trilokpuri, Delhi-91
5	Editor's Name	:	**Dinesh Kumar Kashyap**
	Nationality	:	Indian
	Address	:	3/259, Trilokpuri, Delhi-91
6.	Name & Address of Individuals	:	**Red Flower Publication Pvt. Ltd.**
	who own the newspaper and particulars of	:	41/48, DSIDC, Pocket-II
	shareholders holding more than one per cent of the total capital		Mayur Vihar, Phase-1, Delhi-91

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(Dinesh Kumar Kashyap)

Case Report

New Indian Journal of Surgery
Volume 13 Number 1/ January–March 2022
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.13122.6

Long Standing Intercostal Drainage a Boon or a Curse: Our Experience

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How to cite this article:
K Sri Harsha Reddy, Ravi Kumar Chittoria, Nishad K, Neljo Thomas/Long Standing Intercostal Drainage a Boon or a Curse: Our Experience/New Indian J Surg.2022;13(1): 37-41.

Abstract

Seroma, wound infection, skin flap necrosis, nipple necrosis (after nipple-areolar sparing mastectomy [NSM]), are all complications of mastectomy. ICDs (intercostal chest drains) are frequently employed in medical, surgical, and critical care settings. Incorrect placement or management of intercostal chest drains can lead to significant morbidity and even mortality. The risk of acquired infection is directly proportional to the duration of ICD placement in-situ. For patients with sepsis and septic shock, therapeutic priorities include securing the airway (endotracheal intubation and mechanical ventilation), correcting hypoxemia, and establishing vascular access for the early administration of fluids and antibiotics. Hence, ICD tubes that are kept in-situ for a long duration must be managed according to the approved guidelines by qualified personnel and under adequate supervision.

Keywords: MRM complications; ICD (Intercostal chest drains); Sepsis; Tube Thoracostomy.

Introduction

An Modified Radical Mastectomy(MRM) is a complete removal of the breast and the underlying fascia of the pectoralis major muscle, along with the level I and II axillary lymph nodes. Seroma, wound infection, skin flap necrosis, nipple necrosis [after nipple-areolar sparing mastectomy (NSM)], chest wall pain, phantom breast syndrome, and arm morbidity are all complications of mastectomy. After breast and axillary surgery, seroma development (a collection of serous fluid under the skin flaps) is prevalent.[1,2] Untreated seroma formation results in delayed wound healing, wound infection, wound dehiscence, flap necrosis, delayed recovery, and poor cosmetic outcome.[3]

ICDs (intercostal chest drains) are frequently employed in medical, surgical, and critical care settings. Incorrect placement or management of intercostal chest drains can lead to significant morbidity and even mortality. In 1 to 3 percent of patients, pneumonia or empyema complicate the insertion of a thoracostomy tube or catheter. Increasing duration of tube or catheter placement and retained hemothorax increases the risk of infection, which is more common in patients sustaining penetrating chest trauma.[4,5]

Sepsis is a clinical syndrome characterized by systemic inflammation due to infection Sepsis can range in severity from infection and bacteremia to sepsis and septic shock, all of which can result in multiple organ dysfunction syndrome (MODS) and mortality. Septic shock is a type of vasodilatory

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Received on: 16.12.21
Accepted on: 01.02.22

or distributive shock. Septic shock is defined as sepsis that has circulatory, cellular, and metabolic abnormalities that are associated with a greater risk of mortality than sepsis alone. For patients with sepsis and septic shock, therapeutic priorities include securing the airway (endotracheal intubation and mechanical ventilation), correcting hypoxemia, and establishing vascular access for the early administration of fluids and antibiotics.

Case Report

A 61 year old female, known diabetic on treatment, was diagnosed to have Carcinoma right breast 10 years back following which she underwent right modified radical mastectomy (MRM) ; HPE reported invasive ductal carcinoma(IDC)-T2N0M0. She then received adjuvant chemotherapy and radiotherapy. Post RT she was started on hormonal therapy (tamoxifen from 2012-2015 and letrozole from 2015-2018).

10 years later (2021), she developed pus discharge from the MRM scar and eventually an ulcer formed; gradually progressed to maggots infestation. PET-CT taken showed osteoradionecrosis and osteomyelitis of right chest wall (3,4,5,6 ribs).

She then underwent debridement for the same with resection of right chest wall along with the involved ribs with reconstruction with bovine pericardium and Latissmus Dorsi (LD) flap; ICD tube was inserted Post surgery; she developed flap necrosis(infected); underwent wound debridement and VAC therapy.

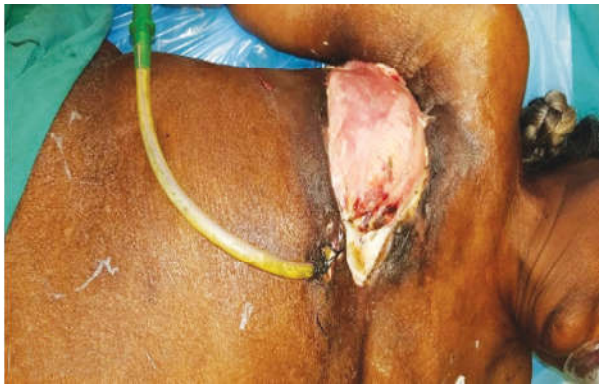

Fig. 1: Image depicting post MRM flap necrosis with muscle exposed; purulent drainage in ICD (subxiphoid position).

Following this, she was admitted in our institution with ICD in-situ (unchanged). On examination ICD tube was found to be placed in right sub-xiphoid position (figure 1) with normal column movement(2cm) (no air leak/bleeding) and pus draining. LD flap status: skin necrosis with muscle exposed (figure 2).

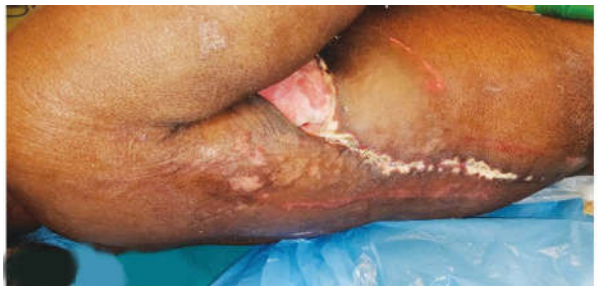

Fig. 2: image showing flap necrosis with exposed muscle and scar site infection.

Cross-consultations were taken from general medicine, Pulmonary. Medicine, CTVS, psychiatry and orders were followed. Patient then underwent 2 procedures and ICD tube was removed during the second procedure on CTVS opinion despite empyema.

Fig. 3: Image showing patient admitted and managed in ICU.

3 days later patient went into septic shock and initial resuscitation was given. Attenders were not willing for endotracheal intubation and mechanical ventilation (figure 3), despite being counselled regarding the morbidity and mortality of their decision (informed consent was taken). Patient eventually succumbed later in the evening and was declared.

Fig. 4: Patient receiving O2 by mask; attenders not willing for intubation and mechanical ventilation.

Discussion

MRM-Complications

The rates of postoperative wound infection after breast surgery are low because these are clean procedures.[6] In a study conducted, the wound infection rate after breast surgery was 2.9 percent in a study of 1400 patients.[7] Obesity, smoking, older age, and diabetes mellitus have been identified to be associated with an increased risk of infection after breast surgery.[8] Smoking increases the risk of wound infection fourfold after breast surgery.[9]

A meta-analysis of 2587 surgical breast procedures found a wound infection rate of 3.8 percent.[10] The majority of infections are staphylococcal infections produced by skin flora.

Most postoperative cellulitis can be treated with oral antibiotics, but nonresponsive or extensive infection requires intravenous antibiotics. A small number of postoperative infections will develop into an abscess requiring drainage by reopening the original surgical incision.

The rate of skin flap necrosis from modified radical mastectomy (MRM) or simple mastectomy is estimated at 10 to 18 percent.[11,12] Full-thickness skin flap necrosis requires surgical debridement and may require skin grafting and result in delays in adjuvant treatment and diminished cosmetic outcome.[13] Prior radiation treatment, obesity, older age, and a smoking history can increase the rates of flap necrosis. Technical methods of decreasing the risk of skin flap necrosis include minimizing the use of electric cautery method in dissection, maintaining appropriate skin flap thickness, and avoiding tension on closure of the incision.

Postmastectomy radiation is indicated for patients at high risk for local recurrence, such as T4 tumors and patients with positive margins and/or positive axillary lymph nodes. If postmastectomy radiation is likely, the choice of mastectomy type, choice of the reconstructive approach, and optimal timing of the breast reconstruction (immediate versus delayed) may be affected. Thus, preoperative coordination of care between the breast surgeon, the reconstructive surgeon, and the radiation oncologist assures the best outcome. Prior to mastectomy, an SLN biopsy can potentially be helpful in determining which patients would require postmastectomy radiation.

Radiation therapy kills cancer cells by producing DNA damage, which leads to cell death. Tumor cells are particularly vulnerable to radiation damage because they commonly develop abnormalities in the DNA repair mechanisms that allow healthy cells to recover from radiation damage. Excessive radiation doses, on the other hand, can overwhelm even normal cells with DNA damage, resulting in local tissue alterations and necrosis. During cancer treatment, osteoradionecrosis (ORN) is a significant consequence of radiation therapy in which radiated bone becomes necrotic and exposed.

A weakened immune system, or immunosuppression, is one of the numerous potential adverse effects of cancer and its therapies, making the person prone to infections.

ICD

Collop et al1 reported a 3% early complication rate, which included misplacement and pneumothorax, and an 8% late complication rate, which included dislodgement, infection, and kinking, in 1997.

The clinician's experience and training, the indication for placement, and the conditions under which the tube is inserted all influence morbidity and mortality after thoracostomy tube or catheter placement (ie, elective versus emergency).[14,15] Malposition, infection (eg, empyema, pneumonia),

intercostal nerve or artery injury, organ injury (eg, lung, diaphragm, heart, liver, or spleen), and pulmonary edoema associated to re-expansion pulmonary edoema are all complications of thoracostomy tube or catheter implantation (RPE). In 1 to 3 percent of patients, pneumonia or empyema complicate the insertion of a thoracostomy tube or catheter. Increasing duration of tube or catheter placement and retained hemothorax increases the risk of infection, which is more common in patients sustaining penetrating chest trauma.[4,5]

Septicemia

A dysregulated host response to infection causes sepsis, a clinical condition characterised by physiologic, biologic, and biochemical abnormalities. Multiple organ failure syndrome and mortality can result from sepsis and the inflammatory response that follows. From sepsis to septic shock, there is a spectrum of severity. When shock is present, mortality has been estimated to be between 10% and 40%, according on the population investigated.[1,2]

In the care of patients with sepsis and septic shock, securing the airway (if needed), treating hypoxemia, and obtaining venous access for the early delivery of fluids and antibiotics are all essential.[3,4] Routine laboratory studies, serum lactate, arterial blood gases, blood cultures (aerobic and anaerobic) from two distinct venipuncture sites and from all indwelling vascular access devices, cultures from easily accessible sites (Example; sputum, urine), and imaging of suspected sources should all be obtained simultaneously (within 45 minutes) and it should not delay the administration of fluids and antibiotics.

The cornerstone of initial resuscitation is the rapid restoration of perfusion and the early administration of antibiotics.

- Tissue perfusion is predominantly achieved by the aggressive administration of intravenous fluids (IVF), usually crystalloids (balanced crystalloids or normal saline) given at 30 mL/kg (actual body weight), started by one hour and completed within the first three hours following presentation.
- Empiric antibiotic therapy is targeted at the suspected organism(s) and site(s) of infection and preferably administered within the first hour.

Following the administration of fluids and empiric antibiotics, the treatment response should be monitored on a regular basis. Most patients respond to basic fluid therapy within the first 6 to 24 hours, but resolution can take days or weeks. The response has the largest impact on fluid management, but it can also have an impact on antimicrobial therapy and source control. The most valuable strategy for source detection is a focused history and inspection. Following early investigations and empiric antibiotic therapy, all patients with sepsis should undergo additional efforts aimed at identifying and controlling the source(s) of infection.

Conclusion

In our case the mortality of the patient can be attributed to post chemoradiation immunosuppression making the patient susceptible to infection (SSI and osteomyelitis); Unchanged ICD in-situ for almost a month; removing the ICD despite empyema in-situ; unwillingness of the attenders for intubation and mechanical ventilation.

Intercostal chest drains (ICD) are widely used throughout the medical, surgical and critical care specialties. Incorrect placement or management of intercostal chest drains can lead to significant morbidity and even mortality. Increasing duration of tube or catheter placement and retained hemothorax increases the risk of infection; hence, ICD tubes that are kept in-situ for a long duration must be changed at regular advised intervals.

National Patient Safety Association Advice 2009

Following the evidence of harm, the NPSA issued a rapid response report.[8]

This encourages acute hospital trusts to develop local policies to ensure that:

Chest drains are only inserted by staff with relevant competencies and adequate supervision.

Ultrasound guidance is strongly advised when inserting a drain for fluid.

Clinical guidelines are followed and staff made aware of the risks.

Identify a lead for training of all staff involved in chest drain insertion.

Written evidence of consent is obtained from patients before the procedure, wherever possible.

Local incident data relating to chest drains is reviewed and staff encouraged to report further incidents.

Sepsis exists on a continuum of severity ranging

from infection and bacteremia to sepsis and septic shock, which can lead to multiple organ dysfunction syndrome (MODS) and death. For patients with sepsis and septic shock, therapeutic priorities include securing the airway (endotracheal intubation and mechanical ventilation), correcting hypoxemia, and establishing vascular access for the early administration of fluids and antibiotics.

When ever a morbidly sick patient is being transferred to a higher-level care center there should be a checklist of standard precautions that are associated with patient safety. UK National Patient Safety Agency (NPSA) has proposed a set of guidelines and rapid response report in 2008 to improve clinical care to minimise the associated with ICDs insertion (Figure 5).[17]

Conflicts of Interest: Nil

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Case Report

New Indian Journal of Surgery
Volume 13 Number 1/ January–March 2022
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.13122.7

A Case Series on Rare Types of Carcinoma Breast

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How to cite this article:
B Sampath Kumar, MS Kalyan Kumar, V Vijayalakshmi et al./A Case Series on Rare Types of Carcinoma Breast/ New Indian J Surg. 2022;13(1): 43–47.

Abstract

Carcinoma Breast is a common occurrence in women. Most common pathological type being invasive ductal carcinoma: No Special Type. Carcinoma breast is a systemic disease and its management requires a multimodal treatment including surgery, chemotherapy, radiotherapy, hormonal therapy and immune therapy based on the type and stage of the disease. Here we are presenting a case series of rarer pathological types of carcinoma breast namely. 1: Solid papillary carcinoma with neuroendocrine differentiation, 2: Metaplastic carcinoma of breast, 3: Invasive carcinoma breast mimicking as sclerosing adenosis.

Keywords: Carcinoma breast; Solid papillary carcinoma; Metaplastic carcinoma; Sclerosing adenosis.

Case 1

A 75 year old female with no known co-morbidities came with complaints of lump in left breast for past 4 months. No history of nipple discharge or nipple retraction. No other complaints pertaining to the breast lump or metastasis. she attained menarche at 13 years, married since 22 years of age, P2L2, breastfed both children for 1year each, attained menopause at 49 years of age. Examination of breast revealed a hard lump of size 4x4cm in lower outer quadrant. No evidence of skin or chest wall involvement. No clinically palpable lymph nodes in axilla. Her sonomammogram revealed 3.7x3.7cm lesion between 5-7 o clock position, BIRADS.[4] FNAC from the lump showed carcinoma breast. Pt was planned for left modified radical mastectomy. Her post-op histopathological report revealed solid papillary carcinoma with neuroendocrine differentiation. No perineural/lymphovascular invasion. 13 axillary lymph nodes were examined out of which none were involved. IHC study: CK5/6 weak focal positive, ER 90% positive, PR 90% positive, Her2neu negative, ki67 30%, synaptophysin moderate to strong positive. Post operatively patient underwent chemotherapy.

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Received on: 17.11.21
Accepted on: 03.12.21

Case 2

A 49 year old female, with no known co-morbidities came with complaints of lump in right breast for two months. History of pricking pain over the lump present. No other positive history pertaining to the breast lump or metastasis. No history of usage of oral contraceptive pills. Attained menarche at 12 years of age. Married since 20 years of age. P3L3,

all full term vaginal delivery. Breastfed all three children for 15months. Not attained menopause yet. Examination of right breast revealed a lump of size 4x3cm at upper outer quadrant. No evidence of skin or chest wall involvement. No clinically palpable lymph nodes in axilla. Her sonomammogram revealed 5.2x3.4cm lesion, BIRADS.[5] FNAC showed carcinoma breast.

Core needle biopsy showed features suggestive of invasive carcinoma - no special type. The patient underwent right modified radical mastectomy. Her histopathological examination revealed metaplastic carcinoma with 30% squamous epithelial component, comedo and solid patterns seen. Perineural and lymphovascular invasion could not be made out. 12 nodes were examined and none were involved. IHC study: CK 5/6 positive in squamous differentiated cells, her2neu complete strong positive, ki67 90%, ER negative, PR negative. Postoperatively patient underwent adjuvant chemotherapy+radiotherapy.

Case 3

A 41 year old female, with no known co-morbidities came with complaints of lump in right breast for two months. No other positive history pertaining to the breast lump or metastasis. No history of usage of oral contraceptive pills. Attained menarche at 14years of age. Married since 21 years of age. P3L2, all full term vaginal delivery. Breastfed all two children for 12 months. Not attained menopause yet. Examination of right breast revealed a lump of size 4x3 cm at upper outer quadrant.

No evidence of skin or chest wall involvement. No clinically palpable lymph nodes in axilla. Her sonomammogram revealed a 3x2.3 cm lesion in right upper outer quadrant, BIRADS.[4] FNAC showed features of proliferation breast disease with atypical. Core needle biopsy showed features of sclerosing adenosis. Incisional biopsy was done, which revealed invasive carcinoma - no special type.

Then patient underwent right modified radical mastectomy and the post operative histopathology also confirmed the diagnosis of invasive carcinoma. Adjacent breast tissue showed fibrocystic changes. 18 nodes were examined and one node was positive for malignancy. IHC study: ER 90% positive, PR 90% positive, Her2neu 40% weak incomplete positive, ki67 40%. Post operatively patient underwent adjuvant chemotherapy.

Discussion

Breast carcinoma can be broadly classified as non-invasive and invasive type.

Non invasive carcinoma includes

- Lobular carcinomain situ
- ductal carcinoma in situ.

Invasive type includes

- Invasive ductal carcinoma - not otherwise specified
- Tubular carcinoma
- Mucinous or colloid carcinoma
- Medullary carcinoma
- Invasive papillary carcinoma
- Adenoid cystic carcinoma
- Metaplastic carcinoma

Mixed connective tissue and epithelial tumors

- Phyllodes tumor
- Carcinosarcoma
- Angiosarcoma
- Adenocarcinoma

Solid papillary carcinomas constitute less than 1% of carcinoma breast cases and are characterized by round, well defined nodules composed of low-grade ductal cells separated by fibrovascular cores. Pathologically they exhibit low grade features and often display neuroendocrine and mucinous differentiation. Pathologically tumor size varies from less than 1cm to 15cm in literature. When mucinous differentiation is present, it can be grossly appreciated.

Microscopically they appear as multiple nodules. Cells are ovoid or spindled, occasionally with a streaming appearance. Less commonly observed features are organ oil pattern, microcystic spaces, foamy macrophages and microcalcifications. They are ER and PR positive and Her2neu negative.[1] Mucicarmine stain is positive in cased with mucinous differentiation. They have a favorable outcome.

Distant metastasis can occur without axillary lymph node involvement. Complete excision of the lesion or total/partial mastectomy is the treatment of choice. The role of postoperative radiation and endocrine therapy remains controversial and limited to solid papillary carcinomas with an invasive component. Solid papillary carcinomas with invasive component will have a poorer prognosis.[2]

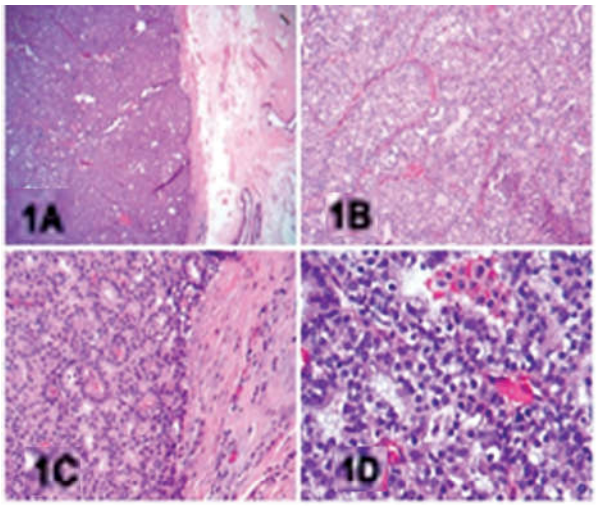


Fig. 1: A, Solid papillary carcinoma displaying well-defined pushihg borders surrounded by a fibrous wall at the periphery of the tumor, B, A complex network of intermingled branching hyalinized fibrovasvcular stroma supporting a soli d proliferation of low-grade ductal cells. Papillary fronds are not seen. C, Areas of the tumor showing perivascular p seudorosette formation. D, Another area of the tumor displaying clear cell changes (hematoxylin-eosin, original magnificationsx50 (A), x 200 (c), and x 400 (D).

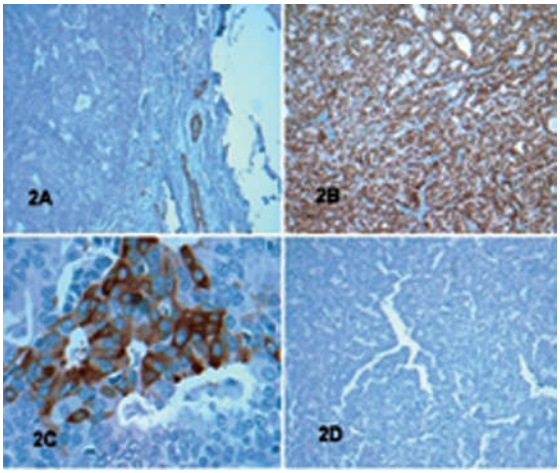


Fig. 2: A, Immunostain for calponin, a myoepithelial cell marker, is negative along the epithelial-stromal interface of the tumor. Internal control staining surrounding small blood vessel is seen. B, Strong and diffuse staining with estrogen receptor. C, Tumor cells are focally positive for synaptophysin. D, Immunohisto chemistry for basal cell-type keratin cytokeratin 5\6 is negative as seen in papillary carcinomas (hematoxylin-eosin, original magnification x 630 (c) and x 100 [D].

Metaplastic carcinoma also constitute less than 1% of carcinoma breast. They are very aggressive and has the worst prognosis. They contain sarcomatous (from mesnchyme) and carcinomatous (from epithelium) components within the same tumor.[3] They are ER, PR negative and Her2neu negative. But they have worse prognosis than non-metaplastic triple negative tumors. Metaplastic breast carcinoma is further classified as mixed metaplastic carcinoma, low grade adenosquamous carcinoma, fibromatosis like, squamous cell carcinoma, spindle cell carcinoma, metaplastic carcinoma with mesenchymal differentiation.

They show markers of both epithelial and mesenchymal origin namely cytokeratin, S100, vimentin.[4] They are typically chemo resistant, high propensity to metastasize, increasedblocoregional/ distal tumor recurrence and far more aggressive. Post operative management should include chemotherapy, radiotherapy and immune therapy. These tumors are mostly chemo resistant because of large primary size, higher histological grade, less nodal involvement, heterogeneity, p53 overexpression and ki67 overexpression.[5]

Post operative radiotherapy has better overall survival rates. Molecular pathways and alterations involved in metaplastic breast carcinoma are epithelial mesenchymal transition, EGFR signally pathway, NOS signalling pathway, WNT Beta Catenin signalling, PD1 and PDL1 overexpression. Newer treatment modalities include Nivolumab (anti CTLA4 antibody) and Pembrolizumab (anti-PD1 antibody).[6]

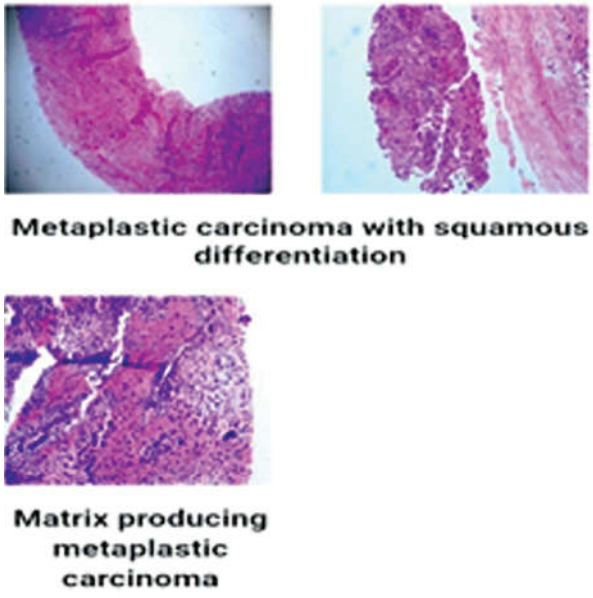
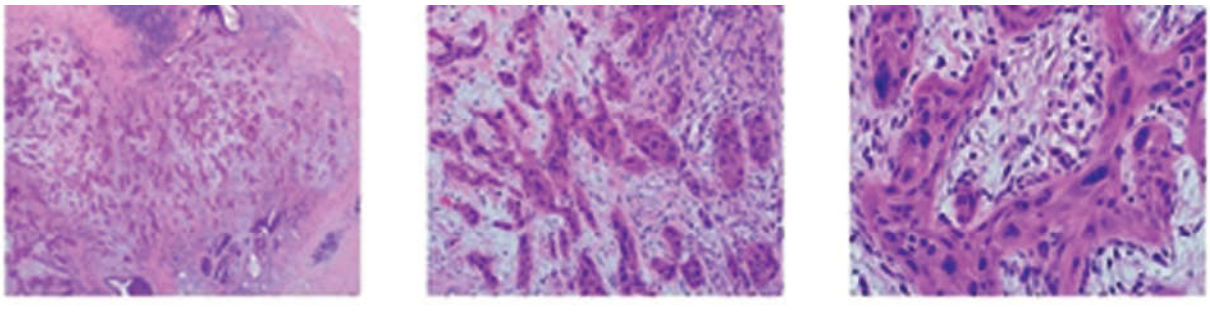
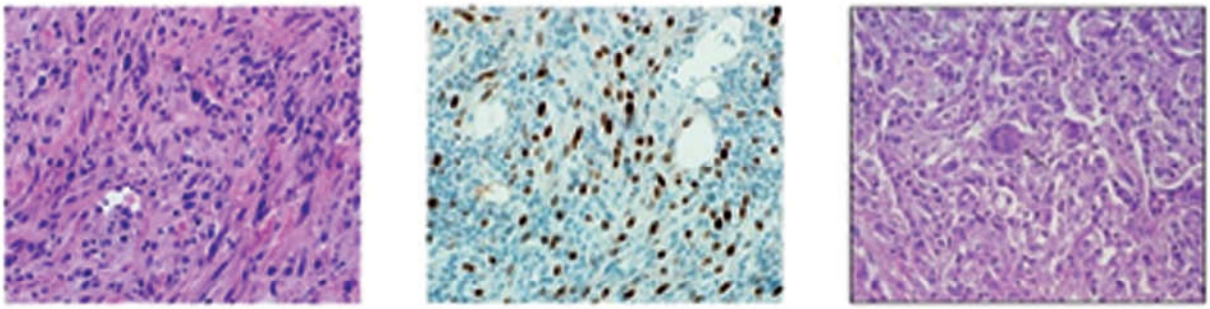


Figure :

Sclerosing Adenosis is considered as a disorder of both proliferation and involution phases of breast cycle. It is considered as a proliferation breast disease without atypia.[7] It is prevalent during childbearing and perimenopausal years and it has no malignant potential. It is characterized by distorted breast lobules and can present as a palpable mass.[8] It can also be associated with

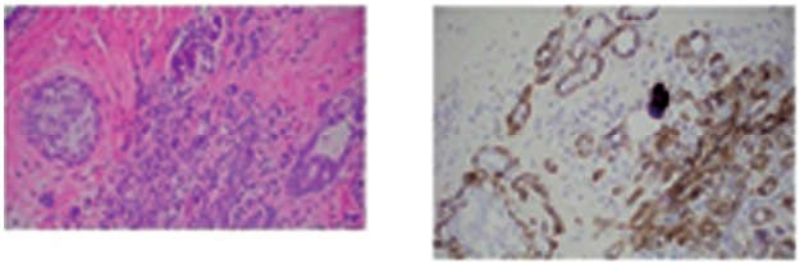


Squamous type



Spindle cell type

Sclerosing adenosis with DCIS



calcifications. It can be managed by observation as long as the pathological and imaging findings are concordat. There can be central sclerosis and varying degrees of epithelial proliferation, apocrine metaplastic and papilloma formation. Sclerosing lesions less than 1cm in diameter are called radial scars. Distinguishing between invasive carcinoma and sclerosing adenosis is challenging based on core-needle sampling and imaging. Often, either a vacuum assisted biopsy or surgical excision is necessary to exclude the possibility of carcinoma.[9]

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[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979–2001. www.statistics.gov.uk/downloads/theme_health/HSQ20.pdf (accessed Jan 24, 2005): 7–18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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