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Original Article

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Pattern of Hand Involvement in Cracker Blast Related Injury : A Retrospective Study

Imran Pathan[1], Ravi Kumar Chittoria[2], Chirra Likhitha Reddy[3], Padmalakshmi Bharathi Mohan[4], Shijina K[5], Neljo Thomas[6]

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Author Affiliation:
[1, 3-6]Senior Resident, [2]Professor, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

Corresponding Author:
Ravi Kumar Chittoria, Professor, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

Email: drchittoria@yahoo.com

Abstract

Crackers or fireworks are an integral part of the celebration of any event and are nice to see and give enjoyment. But if handled with carelessness these may cause severe injury, even death has been reported. Though any part of the body can be injured, hands are commonly involved in such injuries.This study aimed to assess the pattern of hand injuries caused by fireworks among the patients who presented to a tertiary centre of India.

Keywords: Cracker; Hand; Injury; Firework.

Introduction

During festival seasons,firecrackers are one of the more important causes of burn injury. Though the fireworks/cracker related burn injury can occur throughout the year, festival season shows a sharp increase in the number of cases. Diwali is an important festival in India. The crackers market is at its peak during this festival season. Crackers are available easily in most of the markets, despite the presence of strict regulations and laws.

The crackers are small devices containing explosive materials of varying strength, which make a loud sound on explosions. Most of the burns or injuries caused by such firework involve hands and face.[1] In addition to this, ears and eyes may also be involved. Deaths have also been reported. In this study, we evaluate the pattern of hand injuries due to cracker blast presented to a tertiary centre in one year.

Material and Methods

This is a retrospective study conducted in the department of plastic and reconstructive surgery in a tertiary care centreinthe southern part of India. All the cases of cracker-related hand injuries presented during 2019 were included in this study. Retrospective data was collected with the help of X-Rays, clinical photographs, and case sheets. (Table-1)

The pattern of soft tissue involvement of fingers was categorized as laceration, avulsion, and amputation. The bone injuries were classified as fracture and dislocation. In addition, webspace involvement was also studied. In addition to this, the distribution of data according to age, gender, mode of injury, involved structure, and hand involvement was also studied.(Table-2-6)

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Result

Total of 33 patients were presented with a cracker-related injury to the hand. Most of them were male. The right hand was commonly involved and bilateral hand involvement was seen in one case. Laceration of finger or webspace was commonly seen. (Figure-1, 2 and 3) Thumb,index, and middle finger were commonly involved. Amputation was also common in these three fingers only.

Table 1: Details of the patients.

S. No.	Age (years)	Gender	Hand involved	Digits involved	Web space involved
1	13	M	right	I,II,III,IV	–
2	8	M	right	I, II, III	1st
3	19	M	right	I, II, III	–
4	14	M	right	I,II,III,IV	–
5	24	M	right	III, IV	–
6	9	M	right	I, II, III	1st, 2nd, 3rd
7	13	F	right	I, II, III	–
8	31	M	right	I, III, IV	1st
9	30	M	left	I, II, III	1st, 2nd
10	16	M	left	–	1st
11	49	M	right	–	1st
12	5	M	right	III	–
13	16	M	left	II, III	1st, 2nd
14	12	M	right	I, II, III	1st
15	13	F	left	I, IV	1st
16	17	M	right	I, II, IV	–
17	9	M	right	I, II	1st, 2nd
18	19	M	right	I, II, III, IV, V	1st, 3rd
19	35	M	right	I, II, III, IV	1st
20	14	M	left	I, II, III	–
21	17	M	right	I, II, III	1st
22	70	M	Both	Right-I Left- I, II	Right-1st,2nd Left-1st, 2nd
23	13	M	right	I, II, III, IV	2nd
24	9	M	right	II	1st
25	10	M	right	I, II, III	2nd
26	60	M	left	I, II	–
27	13	M	left	III	2nd, 3rd
28	29	M	right	I, II, III	1st, 2nd
29	38	M	right	I, II, III, IV, V	1st
30	30	M	right	I, II	–
31	13	M	right	I, II, III	–
32	9	M	right	I, II, III	–
33	15	M	right	I, II, III	2nd

Table 2: Gender distribution.

Male	31
Female	2
Total	33

Table 3: Hand involvement.

Isolated right hand	25
Isolated left hand	7
Both hand	1

Table 4: Finger laceration.

Thumb	27
Index finger	26
Midddle finger	24
Ring finger	10
Little finger	3
Total cases having one or more finger laceration	31

Table 5: Web space laceration.

First web space	18
Second web space	11
Third web space	3
Fourth web space	0
Total cases having one or more web space laceration	22

Table 6: Finger amputation.

	Thumb	Index finger	Middle finger	Ring finger	Little finger
Distal phalanx	7	5	7	1	0
Middle phalanx	–	0	1	0	0
proximal phalanx	1	3	0	1	0
Total	8	7	8	3	0

Fig. 1: Digital amputation.

Fig. 2: Complex injury with first web space involvement.

Fig. 3: First and second webspacesinvolvemnt.

Discussion

Fireworks are devices of ancient Chinese origin containing combustible chemicals that cause an explosion or spectacular effects.[2] Fireworks, commonly known as crackers, are low hazard explosive comprising of any composition or device manufactured with a view to produce coloured fire or flame, light effect, sound effect, smoke effect (coloured or natural), or combination of such effects. These can be classified in different manners.

The spectrum of firework injuries that have been reported includes burns, contusions, lacerations, foreign bodies, and amputations. There are even reports of death. The majority of injuries resulting from personal use of firecrackers, they mostly involve the hands and most injuries happen at home.

The explosion of a firecracker generates a blast wave that spreads out from a point source. The blast wave consists of two parts — a shock wave of high pressure, followed closely by a blast wind, or air in motion. In general, the damage produced by blast waves decreases exponentially with distance from the point source of the blast.

The injuries that occur in a firework-injured hand include soft tissue injuries, fractures, burns, and traumatic amputations in addition to disruption of the neurovascular supply. Soft tissue injuries include abrasion and lacerations or in more serious form as avulsion injury. Fractures occur when the vibration of the blast component causes the phalanges to break while the distal volar plates of the interphalangeal joints (IPJs) give way, which results in dislocations and avulsion fractures of the IPJs In most cases, these joints undergo amputation. Traumatic amputation occurs when the soft tissues, bones, tendons and ligaments are unable to withstand the explosive force of the firecracker, resulting in a shattering of bone, disruption of the joint, and irreparable damage to the blood vessels and digital nerves as well as insufficient skin coverage. Most commonly thumb, index finger, and middle finger are involved. First and second web spaces are also affected commonly. Males are more common victims.

These injuries are often preventable to a great extent. Public awareness and strict rules and regulation are key factors to reduce such incidences.[3,4,5]

Conclusion

Crackers or fireworks are commonly used during festival seasons in India. But these fireworks are inherently dangerous. The hands are commonly injured due to cracker blast. The injuries may be a simple laceration to amputation of multiple fingers. To minimize the accidents, awareness of safety practices and adherenece to strict quality control should be there.

Conflicts of interest

None

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Platelet Rich Plasma Therapy in Chronic Non-healing Ulcers of Various Etiologies

Monika Baldaniya[1], Raksha Patel[2], Sonal Patel[3]

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Author Affiliation:
[1]3rd Year Resident, [2]Professor and Head, Department of Dermatology, Gujarat Medical Education and Research Society Medical College and Hospital, Gotri, Vadodara, Gujarat 390021, India.
[3]Assistant Professor, Department of Dermatology, Medical College Baroda, Vadodara, Gujarat 390001, India.

Corresponding Author:
Raksha Patel, Professor and Head, Department of Dermatology, Gujarat Medical Education and Research Society Medical College and Hospital, Gotri, Vadodara, Gujarat 390021, India.

E-mail: rakshamp@yahoo.co.in

Abstract

Background: Chronic nonhealing ulcers (CNU) are a major health problem worldwide and it is a challenge for treating doctors. The role of Platelet Rich Plasma (PRP) in wound healing is a boon for the patients. PRP introduces the growth factors directly into the wound and fastened healing.

Aims: to evaluate the efficacy and safety of PRP in CNU of various etiologies.

Materials and Methods: It was prospective interventioal study including 47 patients with 59 CNU of various etiologies. PRP was prepared by manual double spin method and injected into the ulcer. Same procedure was repeated every two week until complete re-epithelization or up to 6 sittings whichever occurred earlier and followed-up after one month. The patients were evaluated for response and adverse events. The ulcer dimensions were measured and photographs were taken before treatment and at every subsequent sitting.

Statistical analysis used: mean, standard deviation, z-test

Results: The mean age of the patients was 42.11(SD 9.44) years. The mean duration of ulcer was 4.05 months (SD 2.08). The mean duration of healing was 4.9 weeks (SD 2.21). The mean percentage improvement in area and volume of the ulcers was 93.77% (SD 14.27) and 96.83% (SD 7.94) respectively. No adverse events were noted.

Conclusion: Conventional therapies can't provide growth factors which are necessary for the healing process.so, satisfactory healing does not occur in CNU. PRP fastened the healing by increasing rate of induction of granulation tissue without any significant adverse events. It is safe, biocompatible, cost effective, simple office-based procedure.

Keywords: Platelet rich plasma; Chronic non-healing ulcer; Wound.

Introduction

Chronic ulcers are ulcers that are non-responsive to initial conventional therapy.[1] It has a great impact at personal, social and professional level of patients. Clinicians are also facing challenges for healing of ulcers. Various modalities of treatment have been tried like saline, collagen dressings, topical Phenytoin or Metronidazole,[2] other reconstructive surgery etc. However,these are not evidence-based. Becaplermin (recombinant platelet-derived GF) is expensive and unaffordable in developing countries.[3] PRP introduces growth factors and cytokines, thereby normalizing metabolic process, promoting neoangiogenesis, improving cellular metabolism and restore the healing.[2] Since, it is an autologous method, it is biocompatible, simple, safe and effective.[2]

Materials and Methods

In this prospective interventional study, a total 47 patients with 59 ulcers were included with the following inclusion and exclusion criteria. Ethical clearance was taken from ethics committee before

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the start of the study.

Inclusion criteria were both sexes, non-healing chronic ulcers more than 6 weeks duration and patients who had received conventional therapies for at least 6 weeks, showing no signs of healing (reduction in size, formation of granulation tissue, epithelization) and with various etiology like leprosy, diabetes, varicosity, trauma etc.

Exclusion criteria were Seropositive patients (HIV, Hepatitis); Pregnancy; Thrombocytopenia; Coagulation defects & anti-coagulant therapy; sepsis; Acute and chronic infections; Malignancies; Keloid tendency; recurrent or recent herpes; uncontrolled sugar levels; unwilling patients.

Patients were thoroughly examined and ulcer size (length, breadth, and width) was measured by the "clock-face" method described by Sussman using a cotton tip applicator and ruler.[3] The double spin centrifugation method was used for preparation of PRP. Under aseptic precautions 10cc of patient's own blood was collected. This blood was then transferred to two vacutainers with prefilled sodium citrate [5 ml each]. The tube was then placed for first centrifugation at the rate of 2000 rpm for 10 minutes [slow spin]. Plasma, buffy coat and upper layers of RBCs were collected into another test tube and centrifuged again at the rate of 3000 rpm for 10 minutes [hard spin][2]. Platelets settled down, upper 3/4th supernatant was discarded and the lower PRP was obtained. This freshly prepared PRP was injected at the ulcer margins and ulcer base using a insulin syringe at 0.5 cm distance and occlusive dressing was done with sterile gauze. The procedure was repeated two weekly until healing or max 6 sittings whichever occurred earlier. The patients were evaluated for response as well as adverse events. The patients were followed-up one month after PRP treatment. Between sessions daily topical antibiotic was prescribed. Wound area was calculated using the formula for an ellipse: length × width × 0.7854 (an ellipse is closer to a wound shape than a square or rectangle that would be described by simple length × width). The use of an ellipse for calculating wound measurement has been used in randomized controlled trials in wound healing literature. Volume was calculated using the formula (length × width × 0.7854) × depth3. At each visit, wound area and volume were measured and serial photographs were taken. The treatment outcome was defined as a percentage change of the area and volume, which was calculated as initial measurement minus assessment day measurement divided by initial measurement.

Results

Fourty seven patients with 59 chronic nonhealing ulcers were treated with PRP at two weekly interval upto complete heling or 6 sitting whichever comes earlier.

The mean age of patients was 42.11 years with SD- 9.44 (Fig.1).

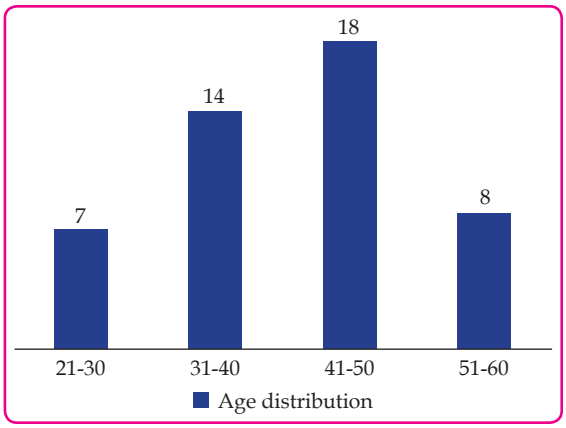


Fig. 1: Age distribution.

There was 31(65.96%) male and 16 (34.04%) female (fig. 2).

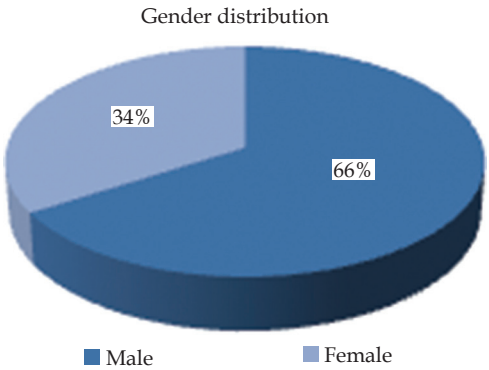


Fig. 2: Gender distribution.

Out of 59 CNU, there were 23 (38.98%) leprosy ulcers, 11 (18.64%) venous ulcers, 14 (23.73%) diabetic ulcers, 5 (8.48%) traumatic ulcers, 6 (10.17%) other ulcers like 5 (8.48%) ulcer of graft failure and 1(1.69%) of lipodermatosclerosis (fig. 3). The site distribution of ulcers was as per figure 4.

The duration of the ulcers ranged from 2 months to 10 months with mean of 4.05 months (SD 2.08). The duration of healing of the ulcers ranged from 2 week to 8 weeks with mean of 4.9 weeks (SD 2.21). The mean total sitting was 2.46. The baseline mean area and volume of the ulcers was 8.12 cm^2 (SD-12.41) and 3.83 cm^3 (SD – 6.55). The final mean area and volume of the ulcers at the end of the treatment was 0.53 cm^2 (SD -1.69) and 0.38 cm^3 (SD – 1.60) respectively. The mean percentage of improvement in area and volume of the ulcers was 93.77% (SD

-14.27) and 96.83% (SD -7.94), respectively (fig. 5).

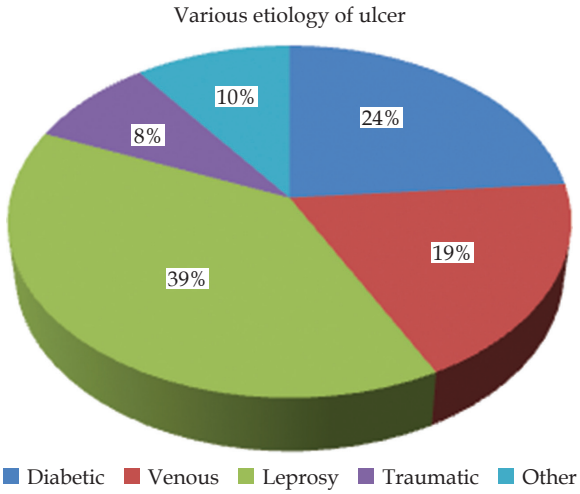


Fig. 3: Various etiology of ulcer.

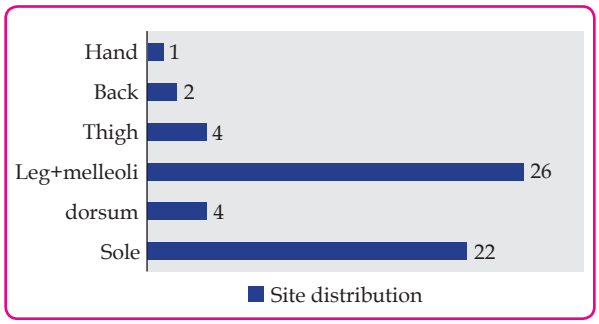
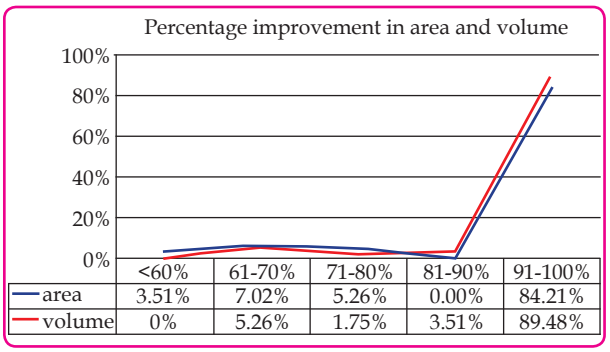


Fig. 4: Site distribution.



	<60%	61-70%	71-80%	81-90%	91-100%
area	3.51%	7.02%	5.26%	0.00%	84.21%
volume	0%	5.26%	1.75%	3.51%	89.48%

Fig. 5: Percentage improvement in area and volume of the ulcers.

The confidence interval (CI) and P value is shown in Table 1. The results were found to be statisticaly significant.

Table 1: CI and P value.

	Baseline value	Final value
Area (cm2)	8.12	0.53
P value		<0.05
CI		4.33-10.85
Volume (cm3)	3.83	0.38
P value		<0.05
CI		1.69-5.20

*CI- confidence interval

There were no side effects noted. The before and after PRP therapy photographs are shown [Figures 6–9].

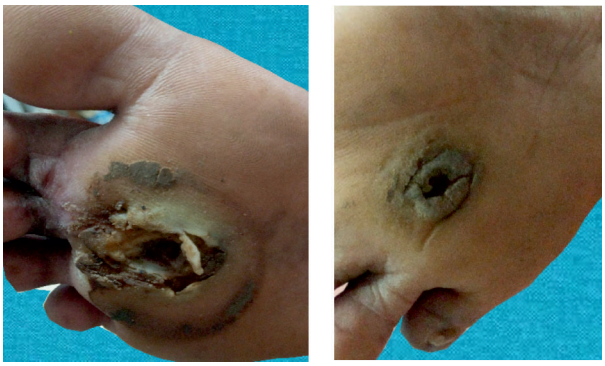


Fig. 6: Trophic ulcer of leprosy (A) before treatment (B) 6 week after treatment.

Fig. 7: Diabetic ulcer (A) before treatment (B) 6 week after treatment.

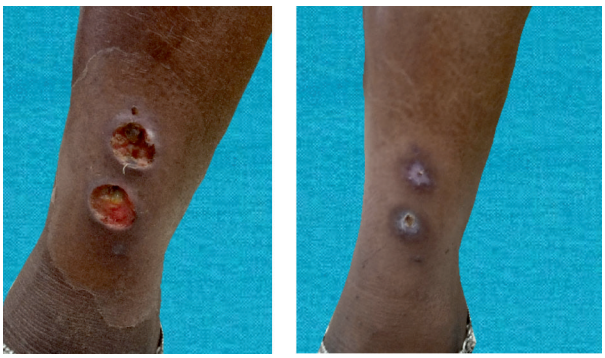


Fig. 8: Venous ulcer (A) before treatment (B) 6 week after treatment.

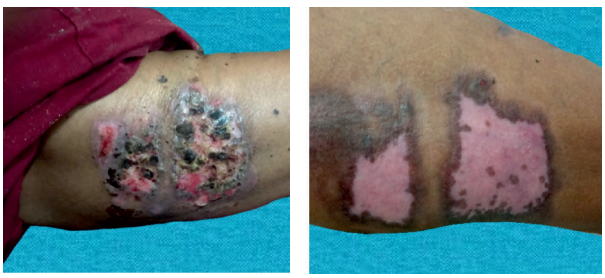


Fig. 9: Ulcer at donor site of graft (A) before treatment (B) 6 week after treatment.

Discussion

Chronic wounds are a therapeutic challenge for healthcare providers, particularly in developing countries like India with limited resources. It comes with cost and morbidity for patients and society, also.

Conventional therapies such as dressings, surgical Debridement and even skin grafting cannot provide satisfactory healing since these treatments are not able to provide the necessary GFs to modulate the healing process.[3]

In 1986, Knighton et al., showed that the accelerated epithelialization of granulation tissue leading to complete repair of chronic nonhealing ulcers is attainable by the use of autologous platelet factors.[3] This was the first clinical demonstration that locally acting factors derived from autologous blood promote healing of chronic cutaneous ulcers. In this study, the time for healing after initiation of platelet-derived wound-healing factors (PDWHF) was 4.9 ± 2.21 weeks.

Platelet-rich plasma enhances wound healing by producing GFs released from alpha granules.[3] These include platelet-derived GF, fibroblast GF, vascular endothelial GF, epidermal GF and transforming GF. These GFs stimulate mesenchymal cell recruitment, proliferation, extracellular matrix degeneration and cell differentiation for tissue regeneration[3] because of the presence of leukocytes in PRP; it also acts as an anti-inflammatory factor. Platelets also release numerous other substances like fibronectin, vitronectin, and sphingosine 1-phosphate that are important in wound healing. An advantage of PRP over the use of single recombinant human GF delivery is the release of multiple GFs and differentiation of factors upon platelet activation.3 There is no standard method of preparation of PRP in literature. According to Marx, to truly concentrate platelets from autologous blood, the device must use a double centrifugation technique. Regardless of the rate of centrifugation or the time of centrifugation, a single spin cannot adequately concentrate platelets, because the red blood cells will interfere with their fine separation3.

A study conducted by Frykberg et al.[5] used PRP gel on 49 patients with 65 non- healing ulcers of varied etiology. It was concluded that 63 of 65 ulcers responded well with reduction in area (mean 43.1%), volume (mean 56.1%) and undermining of the ulcers within a mean of 2.8 weeks with 3.2 treatment sessions.

According a study conducted by Sachidanand et al., mean percentage of reduction in volume and area of chronic ulcers was 95% and 94.14% respectively with a mean PRP treatment duration of 5.1 weeks.[4]

In a study conducted by Suthar et al, all the patients showed healing of the wound/ulcer with more than 90% reduction in wound size observed in 17 (70.83%), followed by 80–90% reduction in 3 (12.5%) patients over the 24 weeks follow-up post-PRP application. Meantime duration to ulcer healing was 8.2 weeks.[6]

Saad Setta et al. conducted a study on 24 patients with chronic ulcers with ages 40-60 years they concluded that sex and age are insignificant in correlation with the rate of healing of their ulcers.7 There was no correlation between the patient's Age and sex and healing rates of ulcers in the present study.

Gui-Qiu Shan et al. studied the effect of PRP on the healing of lower extremity chronic ulcers in which 21 patients with chronic ulcers are included in the study they concluded that, no significance between type and site of ulcers in correlation with the rate of healing.8 This was also seen in present study.

Steenvoorde et al.[9] conducted a study on 12 patients with 13 wounds, showing that 7 of 13 wounds required more than 1 application, with a mean number of 2.2 applications and a mean treatment period of 4.2 weeks.

Kakudo et al.[10] treated five cases of intractable skin ulcer with autologous PRP, among which three ulcers healed completely within 4 weeks and epithelization of wound occurred within 6.6 weeks on average.

According to a study conducted by Anandan et al, 46 patients of trophic ulcers due to leprosy were evaluated for efficacy of PRP. According to their results, 92% showed complete healing, 4 patients (8%) had marked reduction in wound size with partial re-epithelization while 88% had complete healing after the fourth sitting. Mean time to ulcer healing was approximately 4.38 weeks.2

In present study, 47 patients with 59 ulcers were treated with PRP and the mean duration of healing of the ulcers was 4.9 weeks and 2.46 mean total sittings.

Conclusion

PRP reduce the duration of treatment, thus decrease the inpatient hospital stay and improve the quality

of the resulting scar and also the overall quality of life of the treated patients. PRP is beneficial in treatment of non-healing chronic ulcers irrespective of the cause, site, duration and can be used as a monotherapy in chronic ulcers. PRP enhance the healing without any significant adverse events. Being autologous, it is devoid of hypersensitivity reactions. It is a simple, safe, biocompatible and cost effective office-based procedure.

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Role of Modified Egg Membrane in Wound Healing

Neljo Thomas[1], Ravi Kumar Chittoria[2], Chirra Likhitha Reddy[3], Padmalakshmi Bharathi Mohan[4], Shijina Koliyath[5], Imran Pathan[6]

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Author Affiliation:
[1,3-6]Senior Resident, [2]Professor
Department of Plastic Surgery,
Jawaharlal Institute of Postgraduate Medical Education and Research,
Pondicherry 605006, India.

Corresponding Author:
Ravi Kumar Chittoria, Professor
Department of Plastic Surgery,
Jawaharlal Institute of Postgraduate Medical Education and Research,
Pondicherry 605006, India.

E-mail: drchittoria@yahoo.com

Abstract

Ulcer is a discontinuity in the lining of the skin.it may be acute or long standing. Non healing ulcers are associated with delay in the healing process and a prolonged morbidity for the patient. There are providing wound coverage including flap coverage, skingrafting, temporary substitutes for dressing etc. In this article we have used modified egg membrane by boiling the egg application for healing of wound and have found it to be useful.

Keywords: Modified egg membrane; Non healing ulcer.

Introduction

Chronic ulcers are a challenge for the plastic surgeon. There is a delay in wound healing due to various factors like foreign material, decreased growth factors, decreased nutrition, underlying infection etc. and coverage can be given to chronic wound after adequate wound bed preparation (WBP).Biological membranes are used in wound healing which include human amnion,porcine xenograft,alloderm etc.

Materials and Methods

This study was conducted in the department of Plastic Surgery at tertiary care center with the departmental ethical committee approval. Informed written consent was obtained from the patient. The details of the patient are as follows: 37 year old female without co morbidities with h/o road traffic accident 4 months back, underwent right below knee amputation due to a vascular injury and a degloving injury of the left lower limb for which serial debridement was performed in cardiothoracic and general surgery department. Now, the patient presented to plastic surgery department with extensive raw area over the left lower limb and non-healing ulcer over the right below knee amputation stump.The regular dressing did not lead to wound healing and had left raw areas which did not heal completely (figure 1). We used boiledegg for getting egg membrane for dressing for the raw areas.

Egg membrane was harvested by boiling the eggat 100-degreeCelsius and making the outer shell of the egg sterile by immersing in 70% alcohol for 5 minutes. The egg was broken and the egg membrane between the egg shell and the contents was made sterile by immersing in penicillin or gentamicin. The egg membrane was applied over the non healing ulcer (figure 2). Repeat dressings were done on post-operative day 5 and on the subsequent alternate days till 4 dressings.

Results

There was good wound healing of the recipient areas of the wound. (figure 3)

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Fig. 1: Non healing ulcer.

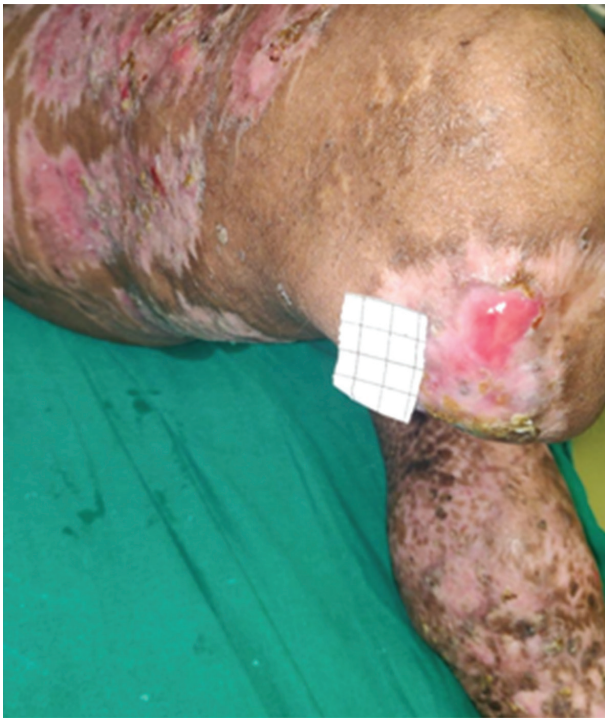

Fig. 2: Egg membrane treatment.

Fig. 3: After egg membrane treatment.

Discussion

An ideal wound dressing can provide an environment suitable for rapid infection-free healing,cause minimal pain, require minimal care. Although some commercial synthetic or compositematerials meet these requirements,they are costly and not very user-friendly. Among biological dressings, human amniotic membranes are useful in partial thickness skin wounds as a temporary dressing thatcan promote reepithelialisation. Inclinical applications, amniotic membranes are fragile, difficult to use, become easily macerated, and are notreadily available,[1] Porcine skin is another material that has been used as a biological dressing. However, as Salisburyet al.[2],porcine xenografts incorporated into the wounds of patients, caused pronounced inflammatory responses and a prolonged healing time. Finally, collagen sheets become easily macerated; excessive wound discharge occurs; and the material is useful for superficial donor site wounds.[3,4] Egg membrane, the protective covering for chicken embryos, is a mixture of proteinand glycoprotein. Egg membrane was first used inclinical trials in 1981, as described by Maeda and Sasaki.[5] Maeda and Sasaki presented 3 cases with epithelialization and concluded that egg membrane is an inexpensive and a reliable biological dressing. Egg membrane is thin (60-70 µm), highly collagenized fibrous connective tissue comprised of both an inner and an outer layer. Egg membrane is comprised mainly of protein, making up 88%-96%of dry weight[6], and its unique structure provide sadhesion and vapor transmission. Egg membrane is a cell membrane sheet that without a nuclear DNA. Theoretically, egg membrane has very less antigenecity. The advantage of using boiled egg membrane is that we can harvest larger area of membrane.

Conclusion

Egg membrane can be used as treatment of non-healing ulcers.

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Pyoderma Gangrenosum and Behcet's Disease Overlap –A Case Report

Dhruv Patel[1], Jinal Tandel[2], Pragya A Nair[3]

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Author Affiliation:
[1]3rd Year Resident, [2]2nd Year Resident, [3]Professor and Head, Department of Dermatology, Venereology and Leprosy, Shree Krishna Hospital Pramukhswami Medical College Karamsad, Anand, Gujarat 388325, India.

Corresponding Author:
Pragya Nair, Professor and Head, Department of Dermatology, Venereology and Leprosy, Shree Krishna Hospital Pramukhswami Medical College Karamsad, Anand, Gujarat 388325, India.
E-mail: drpragash2000@yahoo.com

Abstract

Pyoderma gangrenosum is a rare, chronic, sterile,pustular and progressive ulcerative disease with 4 clinical and histological variants named as ulcerative, pustular, bullous and vegetative. Behcet's disease is a complex of multisystem disease characterized by orogenital ulceration and eye disease as a classic triad with involvement of other systems . BD and PG , both are neutrophilic dermatoses with oral and genital ulcerations having different frequency. The clinical features of mucosal ulcers are different to some degree between the two diseases, but there is a histopathological distinction between PG and BD . Association of BD and PG are rare but do occur . We report here a case of BD who subsequently developed genital ulcerative PG.

Keywords: Pyoderma gangrenosum; Behcet's disease; Neutrophilic dermatosis; Orogenital ulcers.

Introduction

Pyoderma gangrenosum (PG) is a rare, chronic, sterile,pustular and progressive ulcerative disease with unknown cause. Classical PG presents most commonly as an extremely painful erythematous lesion which rapidly progresses to a blistered or necrotic ulcer. There is often a ragged undermined edge with a violaceous/erythematous border and lower legs are most frequently affected.[1]

Behcet's disease (BD) is a complex of multisystem disease characterized by orogenital ulceration and eye disease as a classic triad with involvement of cardiovascular, gastrointestinal, musculoskeletal and central nervous systems also at times.[2]

There are few reported cases involving the diagnosis of BD and PG in the literature.[3] We report here a case of BD who subsequently developed genital ulcerative PG.

Case Report

A 30 year old, unmarried, female residing at Madhya pradesh, presented to skin OPD with complain of lesions over genitals since 3 months associated with fever, pain, itching, burning sensation and discharge which gradually turned into raw areas. Patient has taken medications from many private practitioners with no improvement . She complained of constipation, throat pain, recurrent oral ulcers and history of weight loss since past 6 months. History of redness, itching and watering from bilateral eyes since 2 years was present.

No history of seizure, unconsciousness, breathlessness, chest pain, abdominal pain, vomiting, diarrhoea, seasonal aggravation, any known food or drug allergy. No history of any sexual exposure was present.

Past history of similar lesions 3 years ago which

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were associated with fever, pain, burning sensation and itching, She had Pulmonary tuberculosis 7 years ago and had taken AKT for 6 months. No history of similar skin lesions in family. The menstrual cycle was regular at every 28-30 days interval with 5-7 days of menstrual flow.

Cutaneous examination showed a single, well defined, annular ulcer approximately 2 cm in size with regular, rolled out violaceous margin, erythematous floor and pale granulation tissue over left lower part of labia majora. [Figure-1a] A single, well defined, oval, erythematous ulcer of size approximately 1 cm size with regular margin and single erythematous papule over right labia minora and majora respectively. [Figure-1b] A single, well defined, oval aphthous ulcer was present over left buccal mucosa [Figure-1c]. Hair and nail examinations were found to be normal. Looking at the history & examination provisional diagnosis kept was behcet's disease.

Fig. 1a: Single, well defined,annular ulcer approximately 2 cm in size with regular, rolled out violaceous margin, erythematous floor and pale granulation tissue over left lower part of labia majora.

Laboratory examination of blood showed raised ESR and CRP. Serology for HIV and Syphilis were non reactive. Pathergy and Montox test were negative. Histopathological examination of skin biopsy taken from ulcer over left labia majora showed focally hyperplastic epithelium. The

Fig. 1b: Single, well defined, oval, erythematous ulcer of size approximately 1 cm size with regular margin over right labia minora and single erythematous papule over right labia majora.

Fig. 1c: A single, well defined, oval aphthous ulcer over left buccal mucosa.

underlying stroma contains granulation tissue comprised of plenty of polymorphs, lymphocytes, plasma cells and macrophages with vascular proliferation and hemorrhage with no epitheloid granuloma. [Figure-2] Findings with suppurative inflammation were suggestive of pyoderma gangrenosum .The gram stain examination showed moderate number of gram negative bacilli and plenty of gram positive bacilli. No Donovan bodies were found. Chest X-ray showed no significant findings .Patient was diagnosed as a case of behcet's disease with ulcer of pyoderma gangrenosum over the genitals.

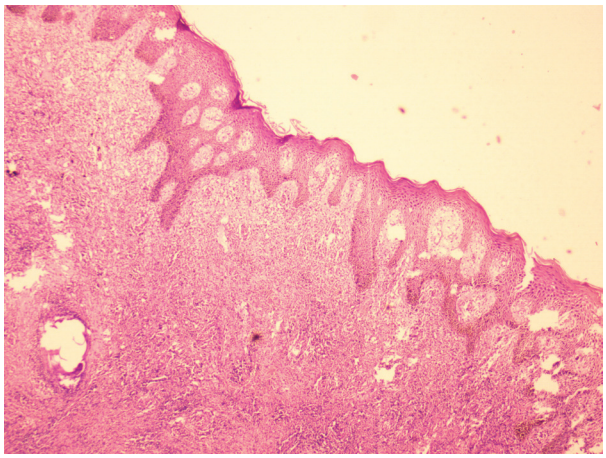

Fig. 2: Histopathology showed focally hyperplastic epithelium. Dermis showed granulation tissue comprised of plenty of polymorphs, lymphocytes, plasma cells and macrophages with vascular proliferation and hemorrhage.

Patient was treated with tab Dapsone 100 mg HS, tab Doxycyclin 100 mg BD, tab Prednisolone 40 mg OD to start with , which was gradually tapered and stopped after 1 month. The lesions improved with scars and showed no recurrences at the end of 4 months [Figure-3]

Fig. 3: Healed scar at the end of 4 months.

Discussion

PG was first described by Brocq in 1916 as "phagedenisme geometrique" later named by Brunsting, Goeckerman and O'Leary in 1930, It is a misnomer also known as dermatitis gangrenosa and phagedenic pyoderma.[4]

Etiology of PG includes neutrophil dysfunction, immunological & genetic factors, infection with Chlamydia pneumoniae, drugs like propylthiouracil, tyrosine kinase inhibitors, isotretinoin, TNFα inhibitors, epidermal growth factor receptor inhibitor and granulocyte-colony stimulating factor .About 50% cases are associated with inflammatory bowel disease such as ulcerative colitis or Crohn disease, arthritis, monoclonal gammopathy, malignancy, myeloproliferative disorder[4] and rarely Behcet's disease.[3]

PG usually starts as an inflamed nodule which progresses rapidly to an ulcer with an indurated and undermined purplish edges. The borders of ulcers extends peripherally in rough, serpiginous configuration. It is surrounded by crops of small, discrete pustules with inflammatory areola. Within a few days,the centre of the pustule softens and becomes an ulcer as seen in our patient. Clinically, PG is classified into the following four varieties:ulcerative,pustular, bullous, vegetative, peristomal and malignant.

The skin biopsy is done to exclude other causes of cutaneous ulceration from the active border of ulcer and to allow specimens to be sent for bacterial, mycobacterial and fungal cultures.

Table 1: Diagnostic criteria for Behçet's syndrome.

Criterion	Required features
Recurrent oral ulceration	Aphthous (idiopathic) ulceration, observed by clinician or patient, with at least three episodes in any 12-month period
Plus any two of the following:	
Recurrent genital ulceration	Aphthous ulceration or scarring, observed by clinician or patient
Eye lesions	Anterior or posterior uveitis cells in vitreous in slit-lamp examination; or retinal vasculitis documented by ophthalmologist
Skin lesions	Erythema nodosum-like lesions observed by clinician or patient; papulopustular skin lesions or pseudofolliculitis with characteristic acneiform nodules observed by clinician
Pathergy test	Interpreted at 24 to 48 hours by clinician

BD and PG, both are neutrophilic dermatoses. Oral and genital ulcerations are seen in both diseases.[5] but the frequency is absolutely different.

Orogenital ulcers are commonly seen in BD, while is rare in PG.[6] In BD, oral ulcers tend to be small and round, with well circumscribed margins, erythematous halo and yellow to grey floor. The lesions resemble those of recurrent aphthous stomatitis. Genital ulcers are similar to oral ulcers and can cause scar formation.There is no pathognomonic laboratory tests in Behçet syndrome; thus the diagnosis is made on the basis of the clinical findings or on diagnostic criteria from International Study Group for Behcet's Disease[7] (table-1) Our patient was diagnosed as Bechet's disease fulling the criteria in the form of recurrent oral ulceration , eye complains and genital ulcer.

Pustular lesions can be the initial skin manifestation and skin hyperreactivity or pathergy is often found in both diseases. In PG, the ulcers of the genital mucosa appear similar to those skin, which are comprised of a shallow burrowing ulcers with irregular margins and a ragged purple overhanging edges,which was seen in our case. Rapid local destruction may occur in PG.

In PG, vascular involvement ranges from none to fibroid necrosis, and in most cases a neutrophilic infiltrate is present with limited vascular damage. Conversely, in BD, mononuclear cell vasculitis with variable fibrin deposition or leukocytoclastic vasculitis is usually found.

There is a second thought that there is a clinical and histological overlap between PG and BD.[5] Skin lesions of PG and BD may show similar range of histological appearances, including a neutrophilic vascular reaction. Our case showed no necrotic changes with fibrinoid material in the vessel wall favouring PG.

Glucocorticoids, sulfa drugs, dapsone and immunosuppressive agents, such as cyclosporine, azathioprine or cyclophosphamide are therapeutic agents used to treat both PG and BD.[8] Our patient responded with dapsone and had no recurrences after 4 months.

According to history of patient, she is labeled as case of BD who concurrently developed lesions of PG thus it can be accepted as the overlap of PG and BD.

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Standard journal article

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Corporate (collective) author

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