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Role of Cervical Neck Distraction Collar in Management of Post Burn Contracture of Neck

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Abstract

Post burn contracture is a serious problem associated with disability of the patient causing restriction of daily activities. Post burn contracture involving the neck, face, upper extremity and lower extremity causes severe disability of the patient. Post burns patient should be be given adequate splinting of joints to prevent contractures. For splinting of joints and for preventing contractures we have materials in the market. In this article we are going to assess the usage of self-distractible Cervical Neck collar in the prevention of contracture.

Keywords: Burns; Contracture; Neck.

INTRODUCTION

Morbidity from hypertrophic scars and contractures, which are well known burns complications, is still significant, and has even risen as more badly burnt patients survive. The purpose of management is to restore the original function and form. Post-burn neck contractures can influence not only the movements of the neck, but also the function of the lower face, as well as cause tracheal change and cervical spine distortion. Because these contractures cause significant functional and cosmetic issues, as well as economic and psychosocial consequences, operative correction is usually recommended, especially in children, where they can cause growth imbalance in the head and neck area. Release of the scar, restoration of cervical motions, look, and natural profile, and prevention of contracture recurrence are the goals of surgical intervention. The goal of this study was to see how effective distractible neck collars are at preventing burn contracture.

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MATERIALS AND METHODOLOGY

In this case report we used this Cervical Neck Distraction collar which is self distractible in post burn patient. In 28 year old young lady with post burns contracture involving neck, face, axilla, elbow, wrist. We used this distractible cervical collar in this patient 3 months after burns. The contracture band started to occur in the neck post burns. The Distraction cervical neck collar, which can be self controllable by patient itself with a cuff. Before using the neck collar neck three neck measurements taken from angle of mandible to clavicle on both sides (A and B) and from chin

to sternal notch (C). The measurements are A-10 cm, B-9 cm , C-13 cm. The contracture was stable during the period of usage of distractable cervical neck collar after 1 year of burns (Fig. 1, 2). The measurements post usage of distractible cervical collar was A–11.5 cm, B-11 cm, C-14 cm. During the period of usage of cervical neck distraction collar, the contracture does not progress in severity and the contracture was stable during the period of usage.

The cervical neck distraction collar consists of three inflatable air bags attached to one another with a central split for easy application. It was self-inflatable by a cuff attached with to common tubing to all air bags (Fig. 2).



Fig. 1: Patient withwith post burns contracture neck.



Fig. 2: Patient with Cervical neck distraction collar.



Fig. 3 : Cervical neck distraction collar.

RESULTS

In our study Cervical neck distraction collar was successful in preventing and progression of severe post burns contracture of neck. The measurements taken from the patient shows that neck contracture was stable and scar released up to 1.5 cm after the usage for past 1 year. The patient experience and feedback was favourable as it was easy to use , easy to apply, easy to self inflate by patient himselfby cuff. There was no reported complications like scar breakage, non-compliance observed with the use of cervical neck self distraction splint.

DISCUSSION

During acute burn treatment, patients assume a comfortable position; affected joints or regions must be splinted in functional positions to avoid contractures. Particularly with the rising trend towards ambulatory burn care, continuous monitoring by the burns team and patient education is necessary to obtain the optimum functional result. Contractures can arise even with proper initial treatment, necessitating a change in splinting strategies to repair the deformity.[1] If more restoration is required, the afflicted area is restored to its original function. Pressure therapy to prevent and treat hypertrophic burn scars is an important part of burn care, despite the fact that the physiologic mechanism is yet unknown. Treatment options include a variety of materials and methods that can be used immediately after the burn wound has healed and changed as needed until the scar has matured. Neck abnormalities continue to be a substantial cause of morbidity in children who have been burned. Reconstructive efforts must focus on not only restoring proper head position, flexion/ extension, and rotation, but also on meeting the patient's cosmetic and functional goals.[2,3] Splintage should consist of a static splint for 4–6 weeks, and then a dynamic splint until the graft is soft, supple, and wrinkle free. Contractures should ideally be avoided by nursing the patient with a neck extension during the acute phase of wound healing and wearing a cervical collar during the sub acute period.[4] The preoperative use of splints may lead to lesser surgical intervention and in selective cases obviate surgery. Thermal burns which are the most common cause of contractures of the upper limb show the maximum response to preoperative serial splint. Patient with minor contracture and supple tissues are fully corrected with splints without surgical intervention. In patients undergoing surgical correction, skin graft decreases due to decreased contracture angle by using dynamic splints by preventing contractues.[5] By organizing the degree of contracture with the scar type, simple classification system for PBC Linear scar, Band scar, and Broad scar can cause mild, moderate or severe contractures. Post burn mentosternal contractures can be clinically classified into 4 major groups based on the location of the contracting bands and extent of flexion or extension away from the anatomical position of the neck and jaws.[7]

Severe post burn neck contracture results in difficult intubation, which can be life threateningand can result in multiple serious complications and sequels. The patients can be operated under local tumescent anaesthesiasupplemented with intravenous ketamine for release of post burn neck contracture and split skin grafted. This technique obviates the need for endotracheal intubation. There were no complicationsattributed to this anaesthesia technique. There was no graft loss and blood loss was minimal.[8]

CONCLUSION

In our study we have observed that distractible neck collar has a role in prevention of post burns scars with good patient compliance and without any complications. But since it is a study involving a single patient, a definitive conclusion cannot be made. Large randomized control trials are required to confirm the efficacy of this method. This distractible cervical collar will definitely be useful in preventing neck contracture.

Conflicts of interest: None

Authors' contributions: All authors made contributions to the article.

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