ISSN NO. 2320-5407

Journal homepage: http://www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH

CASE- REPORT

CASE REPORT: MANAGEMENT OF FACIAL SCAR DUE TO DRAINING SINUS OF DENTAL ORIGIN USING Z-PLASTY: REPORT OF TWO CASES

Richik Tripathi

BDS, MDS (Oral & maxillofacial Surgery) PhD Scholar, faculty of dental sciences, IMS, BHU VARANASI

Manuscript Info

Manuscript History:

Received: 15 July 2015
Final Accepted: 22 August 2015
Published Online: 30 Sep 2015

Key words:

Corresponding Author

Richik Tripathi

Abstract

Two female patients who visited oral and maxillofacial surgery's outpatient department, complaining of small scar on chin and on left cheek respectively. They were unsatisfied with appearance of scar as it was aesthetically unpleasant to them. Both patients had history of extraoral draining sinus of dental origin. They were treated by using Z plasty technique in which after excision of scarred tissues, two triangular flaps were raised similar to letter Z and were transposed, thus completing the Z plasty procedure.

Conclusion- Z plasty is simple and efficient way of releasing wound contracture or covering small sized skin defects to improve aesthetics as well as functionality of skin tissues.

INTRODUCTION

Z plasty is one of the most commonly performed procedure in plastic surgery. Z plasty do not necessarily eliminates scar but it makes scar less noticeable. Skin contraction if present are reduced or totally eliminated while the damaged tissues are replaced by healthy tissues, improving both aesthetics and functionality of skin tissues. One of the biggest advantage of Z plasty over other techniques designed to improve the appearance of scar is, good color matching of skin with surrounding tissues. The incision for Z plasty can be placed at different angles depending on extent of lengthening required for covering the defect. Average timing of scar revision ranges from 6 months to one year. In fact scars tends to improve spontaneously with time. Z plasty involves interposition of two interdigitating triangular flaps. Two limbs of Z are in different direction while common limb unites them, after transposition of flap the direction of common limb is changed and there is gain in length along the direction of common limb. Extraoral draining sinuses are caused due to escape of pus from alveolar bone into the soft tissues and finally to facial region. Pus is formed in the alveolus either due to persistent infection in carious and exposed tooth or due to periodontal infection. Pus tends to accumulate within alveolar bone. However in prolonged infections pus erodes the outer cortical plate of alveolar bone and escapes into soft tissues, passes along the path of least resistance, finally forming a extraoral draining sinus. Treatment of sinus lies in removing the source of infection and careful dissection of sinus tract from surrounding soft tissues. For removing source of infection either root canal treatment of affected tooth is started or the tooth is extracted. Sinus tract is carefully dissected from surrounding tissues using layered dissection technique or shoe lace technique and it is closed primarily. Removal of wedge of necrosed tissues surrounding sinus tract leaves behind a defect which upon primary closure tends to contract resulting in poor aesthetics and functionality. Using Z plasty not only removes contracture but also improves aesthetics as the size of scar is greatly reduced. In this case report two cases are discussed, in which author used Z plasty technique to improve aesthetics of extraoral scar formed due to draining sinus of dental origin.

Case 1

A 24 year old female patient visited oral and maxillofacial surgery's out patient department, complaining of small scar on chin. She was unsatisfied with appearance of scar as it was on the central area of chin and aesthetically unpleasant to her.

Upon examination a 1x0.5cm scar was found to be present on central chin. Due to absence of connective tissues around the scar a small crater like defect was present at the centre of the scar. No other extraoral abnormality was present. Patient had history of carious exposure of her right lower central and lateral incisors(41,42) and draining extraoral sinus six months back, for which she was treated by root canal treatment of central and lateral incisors(41,42) while the draining sinus was managed by surgical removal of sinus tract and primary closure at some other centre. On intraoral examination no significant abnormality was found to be present. Metal Ceramic crown was present on 41 and 42. Upon radiological investigation, no bony or dental abnormality was detected and the periapical area in relation to 41 and 42 was healed completely. To manage the scar, conventional Z plasty was planned. The part was prepared by scrubbing the skin using 10 % betadine solution. 2% lignocaine with 1:80,000 dilution of epinephrine was infiltrated around scar. The scar was excised completely and the limbs of Z were marked with skin marking pen. BP blade no 15 was used to place the incision along the line marked with pen, and undermining was performed using Kilner scissors and flaps was elevated and transposed to complete the Z plasty procedure. Suturing was done in layers using 4-0 vicryl and 4-0 silk sutures. The biggest advantage of using Z plasty in this case was, the scar was removed completely and deficient skin was replaced by healthy skin.

Case 2

A 19 year old female patient visited oral maxillofacial surgery OPD having chief complaint of unesthetic scar on her left cheek. She had similar extraoral sinus 9 months back like in case 1 and she was treated at some other centre by extraction of involved mandibular 1st molar (36), while the extraoral sinus was left untreated, which healed spontaneously with time leaving behind an unaesthetic scar on her left cheek. No any other intraoral or extraoral abnormality was detected in radiological and clinical examination. Z plasty was planned to manage the cheek scar. After part preparation and infiltration of local anaesthetic, incision was given along the margins of scar and along the limbs of "Z". After excising the scar, triangular flaps were elevated and undermining was performed followed by transposition of flaps. Suturing was done in layers. This way the scar was totally eliminated and aesthetics were improved.

DISCUSSION

The first Z-plasty was performed by Horner in 1837, followed by Denon villiers in 1854, both for correction of ectropion[1]. Depending on purpose of using Z plasty technique, it can be classified into two types

1. Functional Z plasty
2. Cosmetic Z plasty

Functional Z plasty is used to release contracture of wound or to increase the length of wound while cosmetic Z plasty is used to cover the defect created by wound or scar. The limbs of Z are constructed in such a way that the two triangles together have the shape of parallelogram with its shorter diagonal along the line of contracture and longer diagonal lies perpendicular to it. The diagonal are referred to as contractual diagonal and transverse diagonal. The common limb of Z should be always parallel to the line of contracture of wound. When interdigitating flaps are raised and the fibrous band responsible for contracture is divided then the springing apart of divided contracture results in change in shape of parallelogram, and the triangular flaps become transposed, the contractual diagonal lengthens and the transverse diagonal shortens[2,3]. To make the skin flaps fit together in their transposed position the limbs of Z are constructed equal in length. The angles of Z are also made equal in angulation. The maximum angulation at which there is 75% increase in size is 60 degree while minimum at which there is 25% increase is 30 degrees[4]. It is advisable to use 60 degree angulation while releasing wound contracture or scar revision[5]. Keeping angle below 60degrees will reduce gain in length and compromise blood supply of flaps, So it is desirable to use 60 degrees angulation in Z plasty[5]. In large size defects where it is impossible to cover the scar or to reduce contracture using single Z plasty, multiple Z plasties can be performed. Most common complication of Z plasty is necrosis of the tip of flap, and is particularly seen if the skin of flap is excessively thin or if there is scarring of skin.

To overcome such complication flaps can be designed in such a way that at the tip they are broad rather than narrow. Tension in transposed flaps are difficult to avoid , it is however the main reason for wound dehiscence and necrosis at the tip of flaps. To overcome this, proper undermining should be performed to release tension, common limb can be lengthened to release excessive tension and if it is not possible to release tension using all above techniques than multiple Z plasty is advocated.

In conclusion, Z plasty is simple and efficient way of releasing wound contracture or covering small sized skin defects to improve aesthetics as well as functionality of skin tissues.

REFERENCE

1. Rohrich RJ, Zbar RI. A simplified algorithm for the use of Z-plasty. *Plast Reconstr Surg*. 1999; 103(5):1513-7
2. Burke M. Z-plasty. How, when and why. Aust Fam Physician. 1997;26:1027–9
3. Davis W, Boyd J. "Z-plasty.". Otolaryngologic Clinics of North America. 1990; 23 (5): 875–87
4. Hudson D . "Some thoughts on choosing a Z-plasty: the Z made simple." Plast Reconstr Surg .2000;106 (3): 665–71
5. Hove C, Williams E, Rodgers B. "Z-plasty: a concise review." Facial Plast Surg . 2001;17 (4): 289–94

Figure 1- A 24 year old patient with scar on chin

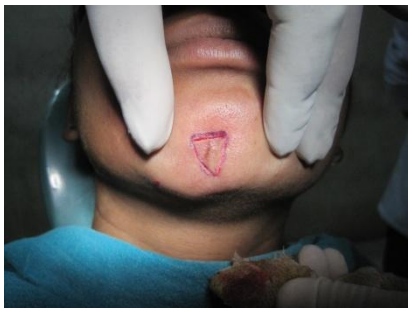

Figure 2- Lines were marked to excise scarred tissues

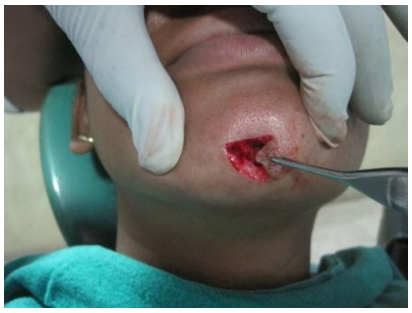

Figure 3- Scarred tissues excised


Figure 4- Limbs of Z were marked


Figure 5- Incision placed along the lines marked and undermining was performed

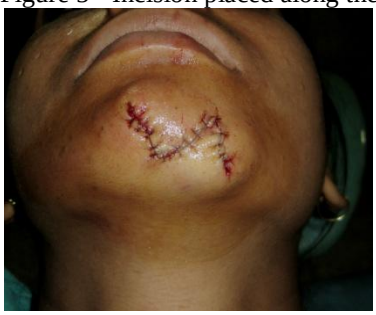
Figure 6- Flaps transposed and sutured


Figure 7- Case 2, 19 year old female patient with scar on her left cheek


Figure 8- Marking of scarred tissues and limbs of Z

Figure 9- Flaps elevated and transposed, followed by layered closure