

Decapitation with Modified Star Closure Technique for Neurofibroma Excision

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Abstract

Neurofibromas is a benign condition with tendency to recur. Post excision aesthetic appearance and primary closure without tension are concerns. This article highlights the technique by which neurofibroma can be excised and closed primarily without tension and aesthetic acceptable appearance.

Keywords: Neurofibroma; Decapitation Technique; Tension Free; Star Closure.

Introduction

Plexiform neurofibromas are congenital, benign, slowly progressive tumors arising from the peripheral nerves or nerve sheaths [1]. Neurofibromatosis type 1 usually manifests with multiple plexiform neurofibromas involving the face in the trigeminal nerve distribution. Patient usually presents with aesthetic concerns of disfigurement and rarely may also have functional disability due to large neurofibromas. Surgical excision can be performed for problematic neurofibromas however with high risk of recurrence because of extensive involvement of the tumors and their potential to regrow [2]. This article highlights a decapitation with star closure, tension free technique of neurofibroma excision with aesthetically acceptable result.

Case Details

A twenty-four-year-old male diagnosed case of neurofibromatosis type I presented with complains of a slowly progressive swelling since birth causing disfigurement of the right side of the face. On examination it was a soft, non-tender, pedunculated plexiform neurofibroma of size 1.2 cm (length) x 1.2 cm

(breadth) x 1.6 cm (height). There were no associated co-morbidities. Patient was investigated and was fit for reconstruction. Informed consent was taken. Photographic documentation was done (Figure 1).



Fig. 1: Pre-operative photograph showing plexiform pedunculated neurofibroma of right side face

Technique

The circumference, height and diameter/length of the pedunculated neurofibroma were noted (Figure 2 a,b,c). The radius was calculated (6mm). The site of decapitation was marked circumferentially at the height equal to the radius (6mm) from the base of the neurofibroma (Figure 3). The radiofrequency assisted decapitation was done under local anaesthesia (Figure 4). The neurofibroma was dissected upto nerve sheath and cored out completely to prevent recurrence leaving healthy skin circumferentially to facilitate tension free closure (Figure 5). Post excision a circumferential defect was closed in a star shape manner using 5-0 monocryl (figure 6 a, b, c). Post operatively the scar was aesthetically acceptable (Figure 7 a, b).



Fig. 2: Preoperative photograph showing circumference, height and length of neurofibroma



Fig. 3: Photograph showing site of decapitation marked circumferentially at height equal to radius (6mm)



Fig. 4: Radiofrequency assisted decapitation of neurofibroma.

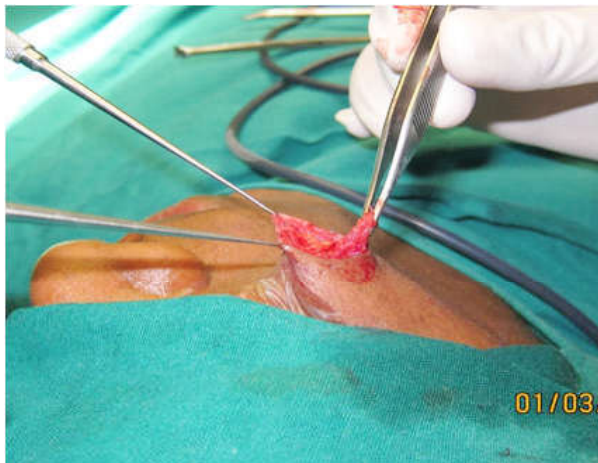


Fig. 5: Neurofibroma being cored out leaving healthy skin circumferentially to facilitate closure

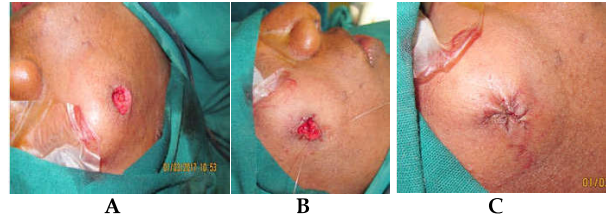


Fig. 6: Post excision a circumferential defect being closed without tension in a star shape manner using 5-0 monocryl



Fig. 7: Preoperative and Postoperative photograph with scar aesthetically acceptable

Discussion

Plexiform Neurofibromas are common presenting manifestations of Neurofibromatosis type 1. They are congenital, slow growing benign tumors occurring in the head, face and neck region in more than 50% cases [3]. Peripheral nerve and nerve sheaths are histologically the tissue involved [4]. Management of plexiform neurofibroma is mainly surgical and has a high risk of recurrence [2].

Surgical expertise for excision is sought by patients for cosmetic concerns. Surgical excision of neurofibromas can lead to large defects leading to closure under tension. An elliptical excision along langer's lines can lead to a large incision in order to avoid a dog ear formation and primary closure. In view of high recurrence rate, excision should be planned preserving as much as healthy skin and tissues as possible.

We suggest a decapitation technique of neurofibroma excision where excision is performed at a higher level from the base of the neurofibroma preserving the normal expanded skin due to size of the swelling. There are reports of

closure of circular defects other than elliptical closure like closure by purse-string suture technique or star shape closure but invariably it leads to closure under tension.

To prevent tension we closed the defect in star shaped manner but above the base of the swelling so extra skin above the base of swelling to level of decapitation could be used for tension free closure. As there is no tension it leads to aesthetically acceptable scar.

Conclusion

Decapitation technique with modified star shaped closure allows tension free closure with minimal excision of healthy tissues and aesthetically acceptable result.

It is recommended that this method of excision to be considered for pedunculated swellings like neurofibromas with healthy surrounding skin. However, a randomized control trial comparing its result with other methods of excision needs to be done to confirm the validity of the technique.

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