

Stealth Surgery in Pediatric Age Group-an Aesthetic Alternative

Saurabh Garge^{1*} , Geetika Paliwal²

¹Pediatric Surgery Unit, Department of General Surgery, Amaltas Institute of Medical Sciences, Dewas

²Plastic Surgery Unit, Department of General Surgery, Amaltas Institute of Medical Sciences, Dewas

***Address for Corresponder:** Dr. Saurabh Garge, Pediatric Surgery Unit, Department of General Surgery, Amaltas Institute of Medical Sciences, Dewas (Email: saurabhgarge8@gmail.com)

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Abstract

Introduction: We used a subcutaneoscopic technique that places incisions at unnoticeable sites to avoid unsightly scars.

Materials and Methods: This is a review of five consecutive cases operated by stealth approach between January 2015 and December 2016. Three cases underwent subcutaneoscopic excision of dermoid cyst and two underwent stealth tenotomy for torticollis. All patients underwent stealth surgery as previously described with few technical modifications.

Keywords

- Stealth surgery
- Subcutaneoscopic
- Torticollis
- External angular dermoid

Results: All five cases underwent successful subcutaneoscopic surgery without the need for conversion. The mean operative duration of the procedure was 45 min.(Range,40-50min) for the external angular dermoid excision and 67.5 min(Range,60-75 min.) for the sternomastoid tenotomy. There were no complications, and all patients had excellent cosmesis.

Conclusion:Subcutaneoscopic excision of dermoid cyst is a technically feasible procedure in pediatric patients and provides excellent cosmesis.

Introduction

Stealth surgery or Subcutaneous endoscopic surgery addresses is used in order to lessen scars by utilizing small incisions located in unnoticeable places.¹ It has been commonly used for treatment

of benign masses in the region of forehead and neck, via incisions behind frontal hairline and in the axillary folds respectively.²⁻⁵ We share our experience and describe our modifications in the surgical technique.

Material and Methods

This is a review of five patients with dermoid cysts and congenital torticollis who underwent subcutaneoscopic excision between January 2015 and December 2016. Of these five patients,

two underwent stealth tenotomy for congenital torticollis (One right, one left) and three underwent stealth excision of external angular dermoid. Out of the five patients three were boys and two were girls, and their mean age was 5 years (range: 1 to 10 years) **Table 1**.

Table 1: Details of our patients

S No.	Procedure	Sex	Age(in years)	Side	Duration(in min.)
1	Stealth tenotomy	Male	10	Right	75
2	Stealth tenotomy	Female	8	Left	60
3	Excision of external angular dermoid	Male	1	Left	45
4	Excision of externalangular dermoid	Female	2	Left	50
5	Excision of externalangular dermoid	Female	4	Left	40

The procedures were performed with children under general anesthesia. Preoperative first generation cephlosporin was administered. Betadine scrub was used to prepare the skin. For hairline incisions, patients were advised to properly shampoo the hair on the morning before surgery. The hair was combed away from the planned incision site using sterile lignocaine jelly. The patient was positioned supine on a head ring with slight extension at the

edge of the bed. For stealth tenotomy, the ipsilateral arm was secured on an arm board at 90 degrees abduction.

We used local anaesthetic to infiltrate the incision sites. The direction of infiltration was towards the lesion to allow certain space creation by hydrodissection. We used Foley's catheter for subcutaneous space creation in three cases and tendon tunneler in two cases **Figure 1**.

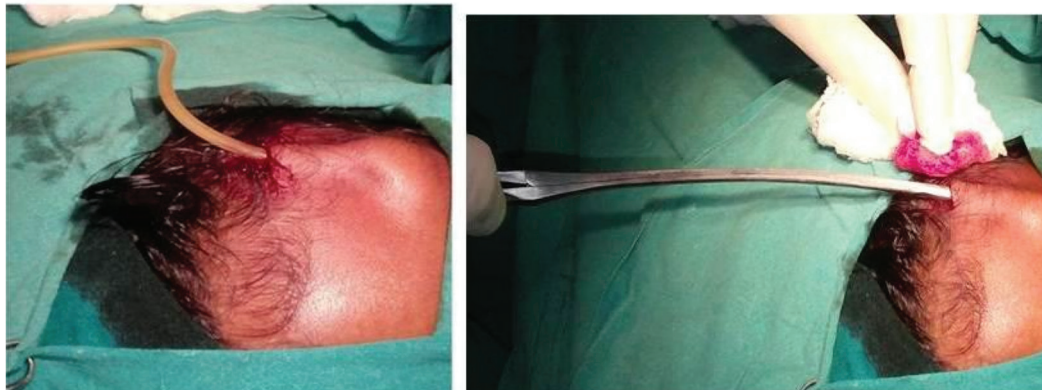


Figure 1: Space Creation Using Foleys Catheter and Tendon Tunneler

In four cases three ports were used and two were enough in one. Three 3mm ports were used for external dermoids; and two/ three 5mm ports for stealth tenotomy. We insufflated CO₂ at pressures

of 6-8 mm Hg with a flow of 1L/min for external angular dermoid and at 10mmHg with a flow of 2-3 L/min for sternomastoid tenotomy **Figure 2 and 3**.

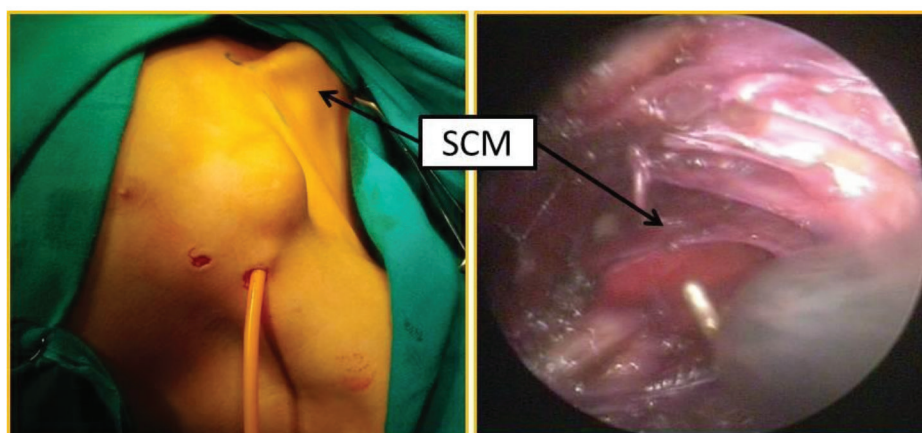


Figure 2: Stealth Tenotomy



Figure 3: Stealth Excision of External Angular Dermoid

Ports were placed as far away as possible from the optical port based on the age and the space available. For both procedures Maryland grasper and hook cautery was used. The dermoid cyst was dissected first superficially and then from the sides followed by the base. For sternomastoid tenotomy the more anterior sternal head is divided first followed by the deeper clavicular head. Cervical fascia was also cut more posteriorly to complete the procedure. After the procedure a thorough wash was given with saline, hemostasis was ascertained and extra carbon dioxide was milked out. Port sites

were closed using absorbable sutures.

The mean operative duration of the procedure was 45 min for the external angular dermoid excision and 67.5 min for the sternomastoid tenotomy. Intraoperative cyst rupture was seen in one case and was managed with suction and irrigation. All patients were discharged on the same day on analgesics and oral antibiotics. All patients had uneventful recovery and had aesthetically satisfied parents. Sternomastoid tenotomy patients were advised to follow physiotherapy. During the follow-up period, there was no recurrence or paresthesia.

Discussion

Stealth surgery has been used abundantly for abdominoplasties, facelifts, browlift and tissue expander placement in aesthetic surgery and by head and neck surgeons for thyroid and parathyroid surgeries.^{1,2} Few pediatric surgeons have conceivably applied this endoscopic approach to benign truncal and lower extremity lesions, persistent torticollis, benign neck lesions and benign forehead masses.¹⁻⁵

Like all newer techniques stealth surgery also has its own learning curve.¹ There are few technical points to be taken into consideration in stealth surgery:

1. It is important for stealth surgery to create proper space and avoid formation of tunnels, instead good caverns should be created. Hydrodissection with local anesthetic, Foleys catheter, Insufflation pressure, tendon tunneler and hook dissection all can be used to create proper space.³⁻⁶
2. The endoscopic view can be disorienting, finger palpation and guidance is required in between as no internal landmarks are visible in subcutaneous surgery.^{3,4}
3. Skin over the surface of swelling can be pinched or can be held with suture suspension to increase the available space.¹
4. A thorough knowledge of the anatomy of the region is necessary in order to reduce complications. During the external angular dermoid excision,

supratrochlear and supraorbital nerves medially and the frontal branch of the facial nerve laterally are vulnerable. However, safety of these can be ascertained by remaining in the subcutaneous plane rather than going for the subgaleal or subperiosteal plane. The approach to SCM is simple, and there are no significant vascular or neural structures at risk.¹⁻⁴

It usually is more of a 'mental problem' rather than a 'technical or financial problem', with many surgeons not offering stealth techniques for subcutaneous swellings routinely to their patients. However, with appropriate instrumentation, knowledge of the anatomy and by gaining proper technical skills, these problems can be overcome.

Conclusion

The stealth surgery has its own disadvantages such as being costly, increased operative times and the need for technical expertise. However, the advantages in the form of excellent cosmesis, decreased wound complications, decreased postoperative pain outweigh the disadvantages.^{2,3}

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Conflict of interests

There is no conflict of interests.

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