

A simple technique for epidermoid cyst removal with transfollicular orifice excision

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ABSTRACT

Background: Epidermoid cysts are the most common cutaneous cysts. They are traditionally treated by excision, with resultant scarring.

Objective: To remove epidermoid cysts with little to no scarring.

Patients and Methods: 17 patients with 20 epidermoid cysts ranging from 5 to 18 mm in diameter were treated using the transfollicular orifice excision technique.

Results: 75% of epidermoid cysts (5 to 12 mm in diameter) were successfully removed. No infections were reported after the procedure and no scars were left after complete healing. Break down of the cyst wall occurred during the procedure in 25% of cysts (14 to 18 mm in diameter), and conventional elliptical incision was performed to excise these cysts completely. Only 20% of cysts recurred during the 6-12 months follow-up period.

Conclusion: Epidermoid cysts from 5 to 12 mm in diameter can be removed with excellent cosmetic results using transfollicular orifice excision technique. The follicular orifice returned to its original size in 6-8 weeks leaving no scars. This technique provides an improved aesthetic outcome compared to traditional excision and minimally invasive techniques.

KEY WORDS: Epidermoid cysts, excision, transfollicular

INTRODUCTION

Epidermoid cysts are the most common cutaneous cysts. They are derived from the follicular infundibulum. They occur most often on non-glabrous skin of young males as slow-growing, firm or fluctuant, dome-shaped subcutaneous nodules or tumors that vary from few millimeters to several centimeters in diameter.^{1,2} They typically show a central punctum² or a comedonal keratin plug.³ They are lined by stratified squamous epithelium and contain a keratinous mass.² Unless previously inflamed, they tend to be loosely attached to the subcutis and move freely within the skin.^{4,5} They are typically treated by traditional

excision and minimally invasive techniques with resultant surgical scarring.³⁻⁷

This report describes a method of cyst removal which results in less to no scarring than traditional excision, a feature of potential importance, particularly for facial lesions.

MATERIALS AND METHODS

This study was performed on 17 patients attending the Dermatology Outpatient Departments of Dermatology of Alnoor Specialist Hospital, Makkah and The Armed Forces Hospitals, Khamis Mushayt, Saudi Arabia from 2011 to 2019. All patients had clinically typical epidermoid

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cysts (Fig. 1 A) which had no history of previous infection or evidence of trauma or rupture. All cysts (n=20) were treated with the technique described below. This study was conducted in accordance with the ethical principles of the Declaration of Helsinki (2008).

The surgical technique

The skin area was sterilized using povidone-iodine (10% w/v) followed by isopropyl alcohol 70%. Local anesthesia was performed by infiltrating the skin with 1% xylocaine without epinephrine using 1 ml syringe with a 26-gauge needle. A magnifying visor (Optisight, Donegan Optical Company, Lenexa, Kansas, USA, P.O. Box 14308) was used during the procedure to facilitate localizing the central hair follicle or punctum on the cysts. The needle was passed into the cyst cavity through the central follicular orifice or the punctum to a depth of approximately 2 mm, and gentle side-to-side and rotatory movement was performed to dilate it. The follicular opening was gradually dilated using a 21-gauge needle (Fig. 1 B) followed by a dental scaler (Fig. 1 C,D), using a similar manoeuvre. Further dilatation was performed by passing the tips of a closed mosquito forceps into the partially dilated orifice followed by gentle further dilatation without traumatizing the cyst wall or the surrounding skin (Fig. 1 E,F). The cyst was pressed gently with subsequent extrusion of its keratinous contents (Fig. 1 G). Additional side-to-side pressure resulted in cyst wall extrusion in 10 cysts. Five cysts required pulling out the cyst wall with the mosquito forceps. The inverted cyst wall was grasped using the forceps tips and gently dissected with gauze (Fig. 1 H,I). The cyst wall and any attached dermal tissue were then

excised carefully along using fine scissors (Fig. 1 J,K,L). This was followed by curettage of the resultant cavity with a sharp curette to remove any possible remnants. Bleeding was minimal. The inverted cyst was sent for histopathological evaluation.

The orifice was either left unsutured or its edges were approximated using one or two 4/0 or 5/0 monofilament polypropylene sutures (Fig. 1 M,N). Both oral and topical antibiotics were prescribed, and the sutures were removed after 7-10 days, but dressing was continued till complete healing occurred.

RESULTS

Ten males and 7 females, aged between 19 and 64 years, comprised the study population. Six cysts were on the face, 6 were on the scalp, and 8 were on the trunk (3 anterior and 5 on the back). They ranged from 5 to 18 mm in diameter. Table (1) summarizes the results of the procedure. 15/20 (75%) cysts, 5 to 12 mm in diameter, were successfully removed. The procedure time ranged from 17 to 20 minutes. Orifice dilatation varied with the cyst size and ranged from 3 to 6 mm in diameter. The sutures were removed after 7-10 days, and complete healing with return of the follicular orifice to its original size and without scarring occurred within 6-8 weeks (Fig. 1 O). Break down of the walls occurred in 5/20 (25%) cysts during the procedure (2 on the scalp and 3 on the back of the trunk). All were ≥ 14 mm in diameter, and conventional elliptical incision was performed to excise them completely. Three cysts, 1 on the face and 2 on the back (3/15, 20%) recurred during the follow-up period that ranged from 6 to 12 months. No infections were reported after the procedure.



Fig. 1 An epidermoid cyst with 2 nearby ice-pick scars that help determining its site (A). Follicular orifice dilation using a syringe needle, a dental scaler, and mosquito forceps together with gentle squeezing of the cyst to extrude its contents (B-G) followed by its inverted wall which was dissected from the skin using a piece of gauze (H,I) and then, excised along with the attached dermis using fine scissors (J-L) leaving a dilated orifice whose edges were approximated by one 4/0 suture (M,N) followed by dressing. Healing occurred without scarring (O).

Table 1 Procedure data

Procedure data	
. Total number of treated cysts	20
. Successfully removed cysts	
Number (%)	15-20 (75%)
Diameter (mm)	5-12
Scarring (%)	(0)
. Procedure time (range, minutes)	17-20
. Follicular orifical dilatation (range, mm)	3-6
. Duration for the dilated follicular orifice to return to normal size (weeks)	6-8
. Broken-down cysts	
Number (%)	5/20 (25%)
Diameter (mm)	≥14
Localization	Scalp (2 cysts) and back (3 cysts)
. Post-surgical infection rate (%)	(0)
. Recurrent cysts	
Number (%)	3/15 (20%)
Localization	Face (1 cyst) and back (2 cysts)

Histopathology confirmed the presence of a stratified squamous epithelial cyst wall, with the keratinous contents external to the wall due to cyst inversion during the procedure (Fig. 2).

DISCUSSION

Removal of epidermoid cysts is traditionally accomplished by elliptical excision with resultant surgical scarring. Techniques such as minimal excision method,^{3,8} biopsy punch excision,⁹ or laser [CO₂ laser- or Er:YAG laser (2940 nm)]-created punch holes^{4,10} have been used to minimize scarring.

In the minimal incision technique, a 2 to 3 mm incision using a No.11 blade was performed followed by squeezing the cyst between index and thumb fingers to extrude its contents and to loosen its wall from the surrounding tissues in order to facilitate its extraction through the incision. The resulting tiny wound is either left open or

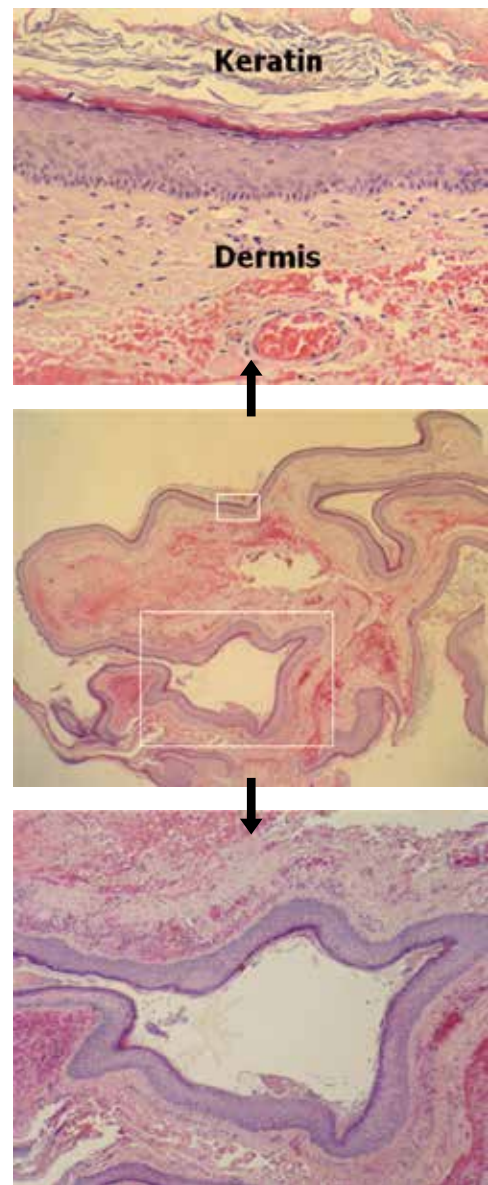


Fig. 2 The epidermis is flat and the keratin, normally inside the cyst, appears falsely outside the inverted cyst wall. The dermis, normally outside the cyst, appears falsely inside the cyst wall.

is closed with a single suture.³ Both the biopsy punch incision and laser [CO₂ laser- or Er:YAG laser (2940 nm)]-created punch holes are essentially similar to the minimal excision technique.^{4,10} Cyst wall removal through a CO₂ laser-created hole can be performed immediately⁴ or one month later.¹⁰ The results of Er:YAG laser (2940 nm) fenestration without cyst wall removal are unclear.¹¹

The technique described herein avoids inci-

sion, and thus results in no scarring. This technique does take slightly longer to perform (17-20 minutes) than conventional elliptical excision (11.0±3.00 minutes) and minimal excision (6.0±2.00 minutes).⁵

The dilated follicular orifices created by this technique ranged from 3 to 6 mm in diameter and were nearly circular in shape. This enabled extrusion of the cyst contents and wall with its subsequent spontaneous scarless recoil to its original size on complete healing. Other minimally invasive techniques have hole diameters between 2 to 5 mm that are created by surgical blades, biopsy punches, or lasers and therefore, heal by scarring.^{4,5,7,12} Recurrence was reported after minimal excision as 0.66%¹² and 2.8%,⁵ respectively and after conventional elliptical excision as 3.3%.⁵ Recurrence after punch excision was noted in 8.3% of cases.⁹ In the current study the recurrence rate was 20%, possibly because of cyst wall fragmentation in larger cysts from previous inflammation or trauma. Additionally, larger cysts tend to have thinner walls, which are likely more friable than those of smaller cysts. This study is limited by having a relatively small number of patients due to referral patterns at the involved institutions.

CONCLUSION

Using the transfollicular orifice excision technique, epidermoid cysts from 5 to 12 mm in diameter can be removed with excellent cosmetic results as the dilated follicular orifice returns to its original size over time leaving no scars. This previously unreported method should be considered, especially for patients who wish to avoid scars. Additional use of this technique should help refine its long-term results.

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Conflicts of interest

There are no conflicts of interest.

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