

One-stage excision of inflamed sebaceous cyst versus the conventional method

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Summary

Objective. The aim of this trial was to determine whether one-stage excision of inflamed sebaceous cysts is preferable to the conventional method.

Methods. A group of 166 patients underwent primary resection of an inflamed sebaceous cyst followed by 5 days' administration of antibiotics. A further 185 patients underwent conventional treatment consisting of initial antibiotic administration and incision and drainage of the lesion, followed by elective surgical excision 1 - 2 months later when the inflammation had subsided. Duration of antibiotic exposure, morbidity and cost were compared between the two groups.

Results. One-stage excision of inflamed sebaceous cysts decreased the duration of antibiotic exposure, reduced morbidity and is more economical.

Conclusion. This study strongly suggests that, provided cases are appropriately selected, primary resection of inflamed sebaceous cysts has advantages over conventional treatment.

followed by regular wound dressings with concomitant use of antibiotics⁵ for 5 - 10 days, surgical excision of the lesion being postponed until inflammation has subsided, usually after 1 - 2 months. This not only subjects the patient to long-term antibiotic exposure, but does not relieve the pain or exclude the risk of abscess formation. Initial incision and drainage still needs to be followed by elective surgical excision.

We carried out a study to determine the advantages and disadvantages of one-stage excision of inflamed epidermoid cysts (non-conventional method) over the conventional method by evaluating variables such as duration of antibiotic exposure, healing time and cost.

Methods

Data were collected from 351 patients with inflamed sebaceous cysts seen in the outpatient department at Tongji Hospital, Shanghai, China, from January 2005 to December 2009 (Table I).

Cases were selected according to the following main criteria: lesion mildly to moderately inflamed with firm consistency without external rupture of the cyst; size of lesion 1 - 5 cm; patient age 11 - 70 years; no history of hypertrophic scarring. Patients with lesions on the face or chest and those who were immunocompromised (e.g. had diabetes mellitus, cancer or HIV infection or were taking corticosteroids or immunosuppressant drugs) were excluded.

The patients were divided into two groups according to the treatment received (Table II). Those willing to undergo the non-conventional treatment were included after receiving a full explanation and providing written informed consent. One hundred and eighty-five patients underwent conventional treatment and 166 one-stage excision.

Conventional treatment consisted of incision and drainage of the inflamed lesion followed by regular wound dressings, along with antibiotic administration for 5 - 10 days until the inflammation subsided, followed by elective surgery, usually 1 - 2 months later. The antibiotic used was a first-generation cephalosporin (oral cephadroxil) 250 mg every 8 hours; penicillin-allergic patients received oral clarithromycin 250 mg every 12 hours. The wound was examined weekly until it had healed.

Non-conventional treatment took place immediately after diagnosis. The procedure was carried out in the outpatient department under strict aseptic conditions. Local anaesthesia was

Epidermoid cyst, also known as sebaceous cyst or keratin cyst, is a dome-shaped lesion that arises from a ruptured pilosebaceous follicle. The lesion can arise anywhere in the body where there are sebaceous glands, but is most commonly seen on the face, neck, shoulder and back.¹ It is usually a slow-growing, painless lesion, felt just below the surface of the skin and generally ignored. However, if it becomes inflamed the lesion becomes very painful, warranting immediate medical attention. Inflammation is often secondary to sebaceous cyst wall rupture with leakage of the contents, which elicits the inflammatory response.² A tender swelling develops, with hyperaemia of the overlying skin. There is evidence that long-standing chronically inflamed sebaceous cysts can lead to cutaneous B-cell lymphoma, although this is rare,³ or result in a foul-smelling necrotising ulcerative lesion⁴ when subjected to friction. These lesions should therefore not be ignored.

The conventional method of treatment, widely practised over many years, involves incision and drainage of any pus if present,

TABLE I. CHARACTERISTICS OF PATIENTS

	Conventional treatment	Non-conventional treatment	<i>p</i> -value
No. of patients	185	166	
Male	121	112	0.683
Female	64	54	
Location of cyst			
Head and neck	23	20	
Trunk	72	65	
Legs and arms	90	84	
Average age (yrs) (mean (SD))	47.2 (6.7)	46.3 (5.8)	0.459

SD = standard deviation.

TABLE II. COMPARISON OF THE TWO TYPES OF TREATMENT

	Conventional treatment	Non-conventional treatment	<i>p</i> -value
Duration of antibiotic exposure (d) (mean (SD))	10.9 (2.3)	5.1 (1.6)	<0.001
Healed with antibiotics (<i>N</i> (%))	54 (29.2)	–	
Developed into abscess (<i>N</i> (%))	131 (70.8)	–	
Postoperative wound infection (30 d follow-up) (<i>N</i> (%))	3 (1.6)	10 (6.0)	<0.01
Healing time of wound (d) (mean (SD))	31.3 (7.6)	10.1 (3.3)	<0.01
Total mean expenses per patient (yuan)*	576 (135)	181 (33)	<0.01

*At the time of writing in December 2009, the exchange rate was 1 yuan to 1.10 SA rands.
SD = standard deviation.

given using 1% lidocaine with noradrenaline. An elliptical incision was made, preferably along the Langer's tension skin lines, 2 - 3 mm from the margin of the cyst. All cyst contents, including the intact cyst wall, were completely excised. If the cyst wall ruptured during the surgery, the resection area was enlarged. The wound was then closed with non-absorbable sutures. After the surgery, antibiotics were given orally for 5 days and all patients were followed up on a weekly basis for up to 30 days.

For both groups, healing time was defined as the time taken for the epidermoid cyst to be completely resected and the incision to be in the process of primary healing.

Results

In the group treated using the conventional method, the mean duration of antibiotic exposure was 10.9 days. In 131 patients in this group (70.8%), abscess formation or spontaneous rupture of the cyst was observed. In the remaining 54 cases (29.2%) the lesion healed and the patient underwent elective surgical excision of the cyst after 1 - 3 months. This process cost on average 3.18 times as much as the non-conventional treatment method. The patients who received non-conventional treatment also had the advantages of reduced mean duration of antibiotic exposure (5.1 days) and reduced mean healing time (10.1 days).

Discussion

Epidermoid cysts occasionally become inflamed, developing into a fluctuant soft-tissue swelling surrounded by erythema and containing a localised collection of purulent material.⁶ It is generally accepted that antibiotics should first be given with excision and drainage, followed by elective excision when inflammation subsides. Khafif and Attie⁷ and Kitamura *et al.*⁸ have described a satisfactory outcome of one-stage excision of infected sebaceous cysts in the form of primary resection, wound lavage and primary suture without drainage. To our knowledge, ours is the first trial to compare the two methods.

In a retrospective clinical study involving 351 patients with inflamed sebaceous cysts we found that, compared with conventional treatment, the non-conventional treatment method reduced mean antibiotic exposure by about half, shortened mean wound healing time, and reduced mean expenses per patient by nearly a third.

Primary surgical excision of inflamed sebaceous cysts was not recommended by Goldstein and Goldstein⁹ because the inflamed wall is friable and therefore difficult to remove completely, leading to a higher rate of recurrence. Further drawbacks of this method are an increased risk of intra-operative bleeding, which lengthens the operative time, and the fact that primary surgical excision

results in a larger scar. It has also been reported that 6.4% of patients develop postoperative wound infections after primary surgical excision.¹⁰ In our study, 6.0% of patients in the non-conventional treatment group developed postoperative wound infection, compared with 1.6% in the conventional group. This may in part be due to pre-existing local inflammatory mediators, as described by Gottrup *et al.*¹¹ Another possible treatment option, described by Miyata and Torisu,¹² is delayed primary closure 7 - 10 days after the initial debridement. Laser marsupialisation¹³ and minimal excision techniques for treating sebaceous cysts^{14,15} have also been described in the literature, but they are not ideal for infected cysts.

Our study has shown that the non-conventional treatment method relieves patients' pain in a relatively short period of time. The greatly reduced duration of antibiotic exposure decreases the risk of subsequent antibiotic resistance. Furthermore, patients do not have to undergo any further surgical excision, whereas conventional treatment subjects them to psychological stress while they await the elective procedure. The decreased need for antibiotics, a one-stage surgical procedure instead of two, and fewer wound dressing changes all greatly reduce cost, while fewer hospital visits and decreased morbidity enhance patient quality of life.

One-stage excision of inflamed sebaceous cysts is a relatively simple outpatient department procedure. Since the cyst is just below the surface of the skin, any bleeding can be controlled easily. When the primary surgical excision technique is used, the entire cyst wall is removed and the rate of recurrence is therefore minimal.¹⁵

The drawbacks of our study are that the exact diameter of the lesions was not measured, and the duration of the surgery using the two methods was not recorded and compared. Patients were not followed up for more than a month, so we do not know whether there was later recurrence at the same site.

To conclude, our data show that one-stage excision of an inflamed sebaceous cyst has many advantages. Judicious use of

this method, with appropriate selection of patients according to the criteria described above, will help meet the needs of an increasingly cost-conscious health care environment.

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