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Use of the microdebrider for treatment of fibrous gynaecomastia☆

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KEYWORDS
Breast disc;
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Summary *Background:* In the quest for reduced scars and better aesthetic outcomes in minimally invasive surgical techniques for gynaecomastia, suction-assisted lipoplasty and ultrasound-assisted lipoplasty are now considered accepted recent advancements. Nevertheless, the fibrous glandular breast disc encountered in young, thin patients requires a separate peri-areolar incision as the disc cannot be removed with suction lipoplasty. The use of a microdebrider (powered shaving rotary device) is a potential solution to this problem.

We present a series of eight patients with fibrous gynaecomastia that was successfully treated in this way.

Method: The surgery is performed under general anaesthesia. The microdebrider cannula is used to remove the fibrous glandular breast tissue. Drains are inserted and fibrin glue is sprayed subcutaneously. Patients are discharged on the next day. Drains are removed on the 5th postoperative day. A compressive vest is worn for 6 weeks. (A video of the procedure can be seen on http://www.microflap.com/video3.asp).

Results: The eight patients were successfully treated. No bleeding, haematoma or seroma was encountered. All patients were satisfied with the results of the surgery.

Conclusion: The microdebrider is a viable solution in the treatment of gynaecomastia with a fibrous breast disc. Excellent aesthetic results can be achieved with a single 3-mm incision.

The aim of surgery in gynaecomastia is to remove sufficient breast tissue to enable restoration of a symmetrical masculine chest contour. The traditional approach for gynaecomastia is excision using a peri-areolar incision. Despite the introduction of liposuction techniques, a peri-areolar incision in cases where there is a fibrous breast disc is still required. We present the use of a microdebrider which allows precise, sharp excision of the fibrous breast

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disc. This is performed through a single 3-mm incision via a closed technique, thereby eliminating the need for a peri-areolar incision.

Patients and methods

Eight patients underwent treatment with the microdebrider. A detailed history, physical examination and hormonal profile were used to exclude secondary causes of gynaecomastia.

Preoperatively, the breast disc is palpated and marked out. The patient is anaesthetised and skin preparation is performed in the usual manner. The breast disc and the underlying fatty tissues are infiltrated with lignocaine (1:80 000) and adrenaline diluted in cold saline, which creates a zone of vasoconstriction. Hydrodissection around the breast disc helps to create a plane which facilitates the positioning of the microdebrider cannula.

The microdebrider is a powered, rotary shaving device with continuous suction, well established for use in functional endoscopic sinus surgery (FESS) for excision of nasal polyps (Figure 1). The cannula is a hollow tube connected to a suction source, which causes small amounts of tissue to be sucked into the cutting trough at the end. Rotary action of the opposing serrated blades enables sharp dissection of the tissue. The debrided tissue is continuously removed, thereby preventing blockage of the cannula.

A single 3-mm stab incision is made in the anterior axillary line to allow introduction of the microdebrider (Figure 1B and 1C). This site is chosen because it allows the greatest freedom of movement of the surgeon during the procedure. Through the small incision, the cannula tip is positioned under the breast disc, with the cutting edge facing upwards. Gentle pressure is applied to the base of the breast disc, whilst the microdebrider is activated via a foot pedal. The action of excision is a smooth, scraping action, from below upwards, which allows controlled excavation of the breast disc (Figure 2). The breast disc is debrided with minimal effort, due to the sharp dissection afforded by the microdebrider tip. This is a closed technique that allows easy intra-operative assessment of the symmetry of the chest. Any remnant adipose breast tissue around the breast disc is addressed with ultrasound liposplasty, which allows feathering and fine adjustment of the chest contour.

Postoperatively, a chest binder is applied and the patient is reviewed in the clinic on the 5th postoperative day when the drains are removed. The patient is then discharged if there are no complications, with the next consultation scheduled 1 month after surgery.

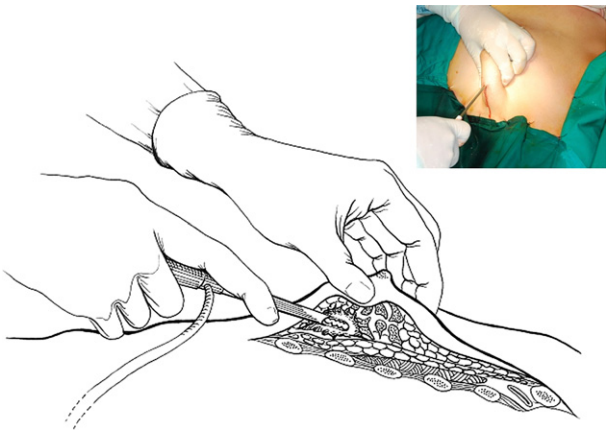

Figure 2 Positioning of the cannula tip under the breast disc. Incision site for microdebrider (see inset).

Results

Eight consecutive male patients were treated with this microdebrider technique (Table 1). All were selected on the criteria that they had Rohrich[1] grade 1B or 2B gynaecomastia (Table 2) with a significant fibrous breast disc. Each had a body mass index (BMI) of less than 25.

There were no complications of bleeding or infection. One patient had hypertrophic scarring over the incision site and another patient suffered minor skin abrasions from the microdebrider. All the patients recovered well and were very satisfied with the results of their operation (Figures 3 and 4). The debrided tissue was sent for routine biopsy which showed breast tissue (Figure 5).

Discussion

In long-standing gynaecomastia, the loose peri-ductal tissue undergoes an irreversible process of fibrosis and hyalinisation, causing a glandular hypertrophy that does not regress. [1] The treatment of established gynaecomastia is by surgical excision.[1]

The treatment aim in gynaecomastia surgery is the restoration of the male chest contour by adequate excision of breast tissue. The authors' observation is that complete

Figure 1 A. Microdebrider machine. B. Microdebrider cannula. C. Close-up of cannula tip showing cutting trough.

Table 1 Patients

Patient No.	Ht (m)	Wt (kg)	BMI	Unilateral/ Bilateral	Grade	Complication
1	1.75	69.80	22.92	Bilateral	1B	-
2	1.83	83.00	24.78	Unilateral	2B	-
3	1.64	59.20	22.01	Unilateral	1B	Hypertrophic scarring
4	1.77	77.30	24.67	Bilateral	2B	-
5	1.75	75.3	24.70	Unilateral	2B	-
6	1.62	61	23.24	Bilateral	1B	-
7	1.72	62	20.96	Bilateral	2B	-
8	1.80	80	24.69	Bilateral	2B	Skin abrasion

removal of all the breast tissue, as seen in open methods, will lead to a subcutaneous depression. Suction lipoplasty techniques are only ideal for gynaecomastia with a predominantly adipose component. When faced with a fibrous breast disc, the suction lipoplasty technique is often supplemented with open-excision techniques to obtain a satisfactory result.

The microdebrider technique is inherently different from the current lipoplasty techniques available, in that the breast disc is approached from the bottom-up in a precise and orderly manner. This is different from ultrasound-assisted lipoplasty where there is honeycombing of the adipose tissue using multiple, long, penetrating strokes, and from suction-assisted lipoplasty, where the adipose tissue is broken down using multiple passes of the cannula.

Suction cannula tips used for liposuction have been used for excision of gynaecomastia and whilst there have been anecdotal evidences of success, the collective experience is that most of the fibrous breast tissue will not be removed by ultrasound ablation.[2–5] Such tips employ techniques of blunt dissection using the avulsive action of the cannula to excise the fibrous tissue. This may offer good bites initially but, subsequently, it becomes increasingly difficult to remove the fibrous tissue, and results in the leaving of remnant breast discs. Repeated strokes of the cannula also endanger the tissue surrounding the fibrous breast disc. These techniques are imprecise and may lead to complications, such as asymmetry or remnant breast discs.

The microdebrider is ideal for the treatment of gynaecomastia as it enables controlled and precise sharp excision of fibrous tissue in very small volumes. The application of the cannula tip to the fibrous tissue causes a small amount of glandular breast tissue to be sucked into the cutting trough. The oscillatory blades then cut the tissue away and the debrided tissue is sucked away. The cannula cuts only in one direction as the underside of the cannula is sheathed, thereby protecting the underlying tissue. The cannula tip is continuously irrigated and this continuous flow helps to remove the debrided tissue, ensuring that the cutting surface remains sharp. Repeated application of the cannula to the fibrous breast disc allows controlled excision of the breast disc. The serrated blades allow for sharp, precise dissection in a controlled fashion, unlike the drawing action

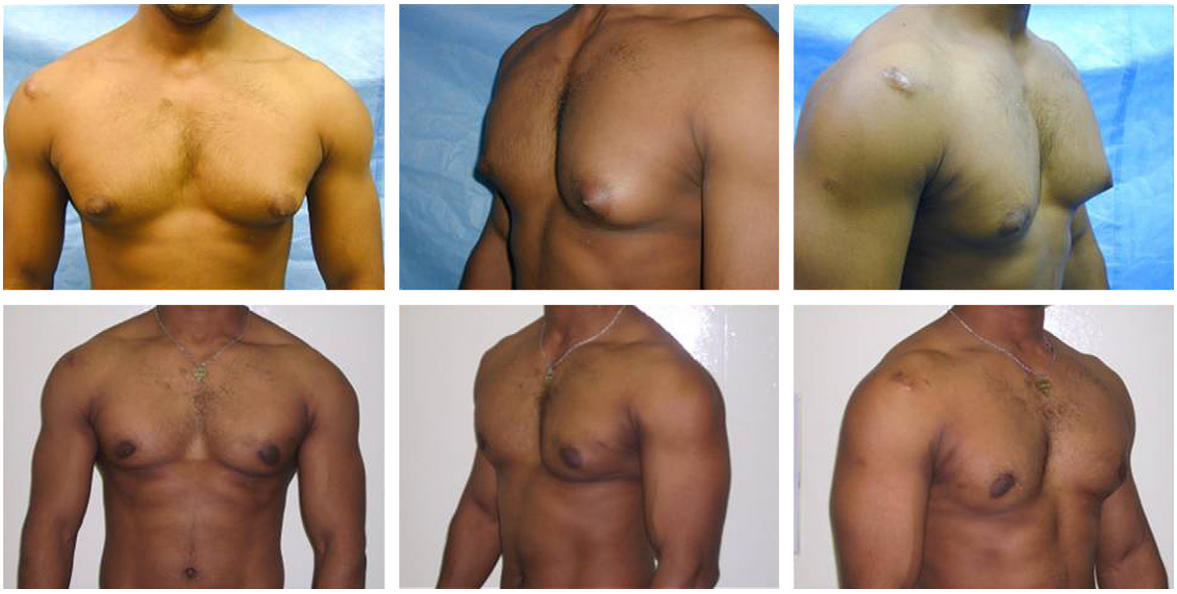

Figure 3 A 28-year-old bodybuilder with bilateral gynaecomastia treated with the microdebrider technique. (Above) Preoperative views. (Below) Postoperative views at 6 months.

Figure 4 A 20-year-old male with bilateral gynaecomastia treated with the microdebrider technique. (Above) Preoperative views. (Below) postoperative views at 6 months.

seen in previous suction-lipoplasty techniques. The tissue that is debrided is limited to the precise area that the cannula tip is applied to, hence avoiding excessive excision. All this is done through a small 3-mm incision. This is a closed technique which provides constant visual and tactile feedback to assist in achieving symmetry over the chest.

The potential risk of this technique is bleeding from the sharp dissection. Such powerful tools are normally used under endoscopic visualisation. However, in the area of the chest, there is no natural cavity, and creation of one would lead to unnecessary subcutaneous undermining of the chest wall. Precautions taken to preclude bleeding include preoperative infiltration with adrenaline and lignocaine, the injection of fibrin glue into the subcutaneous space and the placing of surgical drains. Pressure garments are applied and worn for 6 weeks. There have not been any complications of haematoma or seroma in this series of patients.

Table 2 Classification of Gynaecomastia[1]

Grade I — Minimal hypertrophy (<250 g of breast tissue) without ptosis
IA. Primarily glandular (fatty breast tissue)
IB. Primarily fibrous
Grade II — Moderate hypertrophy (250—500 g of breast tissue) without ptosis
IIA. Primarily glandular (fatty breast tissue)
IIB. Primarily fibrous
Grade III — Severe hypertrophy (>500 g of breast tissue) with grade I ptosis
Glandular or fibrous
Grade IV — Severe hypertrophy with grade II or III ptosis
Glandular or fibrous

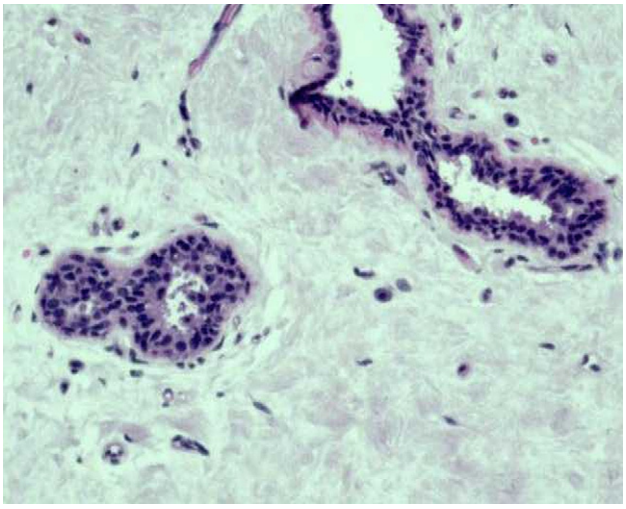

Figure 5 Microscopy of gynaecomastia scrapings from microdebrider showing breast ducts with epithelial hyperplasia and surrounding oedema (haematoxylin and eosin stain magnification × 100).

For surgeons new to this technique, it is prudent to err on the side of under-resection as it is technically difficult to correct chest wall depressions resulting from over-resection. In the authors' experience, the amount resected is often more than imagined and the risk of over-resection decreases as the surgeon progresses up the learning curve.

The use of the microdebrider to achieve aesthetically good, as well as, safe outcome is well illustrated in this series of eight patients. The second peri-areolar incision hitherto needed in liposuction- and ultrasound-assisted lipoplasty for the treatment of fibrous gynaecomastia can now be avoided.

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Disclosure

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