

had existed since birth and had grown very slowly without symptoms, other than a decreased sense of hearing by involvement of the auditory canal. A contouring resection was performed, with difficulty because the radio-opaque tumor was very hard. Upon pathological analyses, areas of lipoma were found inside the specimen and the diagnosis of osteolipoma was made.

The second case³, published in 1989, was a retro-pharyngeal lipoma which demonstrated ossification, and the third case⁴, published in 2001 by Hazanika et al from India, was an osteolipoma of the skull base in a 17-year-old girl.

This case is the first presented in the plastic surgery literature. This impressive benign tumor essentially raises a problem designing the excision and closure to obtain a good morphological correction.

The prognosis and extent of resection are to be discussed. The lipoma was removed in totality, but not the osseous proliferation. There was no clear limit between the hypertrophic bone and the normal bone.

One could have decided to remove the full-thickness of the cranial vault in the affected area. This would have created a defect of 14 cm × 14 cm. A titanium or acrylic implant was not ideal for a boy living in Central Africa, and a repair with autologous bone, at this young age when calvarial splitting is difficult, would have represented a significant enterprise. We felt that this bony proliferation was a consequence of the lipoma, and that recurrence was not certain.

For all these reasons, we decided to contour the excess bone instead of doing a complete, full-thickness removal.

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Autologous breast reconstruction with a free lumbar artery perforator flap

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SUMMARY. Autologous breast reconstruction with a perforator flap has become increasingly popular. This paper presents the free lumbar artery perforator (LAP) flap as an option for breast reconstruction. Flap harvest is easy, no muscle is sacrificed and donor-site morbidity is minimal. Anastomosis of the sensory nerve to the fourth intercostal nerve is possible. The successful use of a LAP flap for breast reconstruction is illustrated with a case report, and the surgical technique is described. This method may be a good alternative for patients with relative contraindications to breast reconstruction with a DIEP flap. © 2003 The British Association of Plastic Surgeons. Published by Elsevier Science Ltd. All rights reserved.

Keywords: breast reconstruction, free flap, perforator flap, sensate flap, lumbar artery.

A new era in autologous breast reconstruction began in 1994, when Allen and Treece¹ and Blondeel and Boeckx² introduced the DIEP flap. The DIEP flap is gaining popularity because it reduces donor-site morbidity relative to the TRAM flap.³ The complexity of perforator-flap surgery, leading to increased operating time, is balanced by the results achieved.⁴ The DIEP flap is relatively contraindicated in patients with an abdominal

scar. Alternative perforator flaps are the superior gluteal artery perforator flap, the thoracodorsal artery perforator flap and the lateral thigh perforator flap. Having gained experience with the sensate pedicled lumbar artery perforator (LAP) flap,⁵ we have started to use this perforator flap as a free flap in breast reconstruction. The LAP flap is a fasciocutaneous flap, which is easy to harvest and leaves an inconspicuous scar. The donor-site morbidity



Figure 1—Appearance after initial reconstruction with a saline implant, showing the median abdominal scar.

is slight. Pedicled flaps as large as 12 cm × 24 cm, based on a single artery, have been successfully used in the treatment of lumbosacral defects.⁶ Preoperative colour Doppler flowmetry is useful to identify the location and calibre of and flow in the perforating vessels and helps the surgeon to design the flap. A case report is presented to illustrate the successful use of a LAP flap in breast reconstruction and to describe the surgical technique for flap harvest.

Case report

A 51-year-old woman had previously been treated for cancer in her right breast with a radical mastectomy and an axillary lymphadenectomy. No adjuvant therapy was given. A secondary breast reconstruction was performed by subpectoral placement of an adjustable saline implant. A reoperation was necessary because of implant rupture. Not satisfied with the aesthetic result and feeling uncomfortable with the prosthesis, she asked for an autologous reconstruction. Preoperative examination

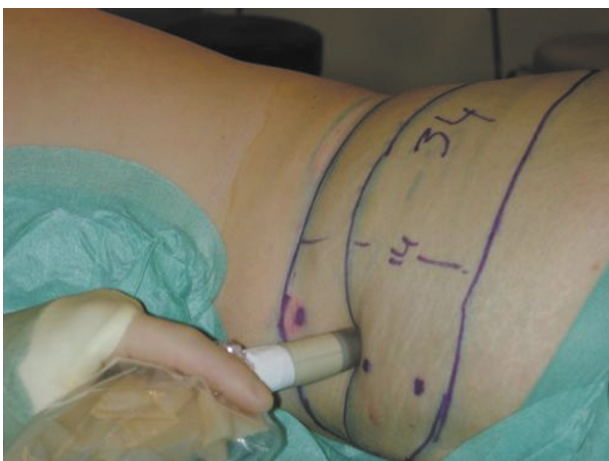


Figure 2—Confirmation of the lumbar artery perforators with a hand-held Doppler.

revealed a median Caesarean-section scar (Fig. 1). As a result of congenital hip dysplasia, the patient had developed body asymmetry, with excessive subcutaneous tissue in her right flank. The abdominal scar made the use of a DIEP flap unattractive. The option of a free LAP flap was discussed with the patient. Preoperatively, the LAPs were localised with a hand-held ultrasound Doppler (Multi Dopplex II, 8 MHz) and marked on the skin (Fig. 2). Colour Doppler flowmetry (General Electric Logiq 9) showed a third LAP, with a diameter of 2.5 mm and a flow of 25 cm s⁻¹. The flap was outlined on the skin, with the axis passing obliquely from the third LAP to the anterior superior iliac spine (Fig. 3a). Flap harvest was performed with the patient in the lateral decubitus position. After incising the skin and subcutaneous tissue, we opened the thoracolumbar fascia medially over the erector spinae muscle. The fascia was elevated with a light retractor to identify the sensory nerves and the perforators. Under direct visual protection of the perforators, the flap was elevated from anterolateral to medial in a subfascial plane. To obtain sufficient pedicle length, the selected perforator with its comitant vein had to be dissected down between the erector spinae and quadratus lumborum muscles. The recipient vessels were the internal mammary vessels, which were dissected simultaneously in a two-team approach. The donor site was closed, the patient was turned to the supine position, the microsurgical anastomosis was carried out, and the breast was shaped (Fig. 3b). Owing to the earlier reconstruction in this patient, the flap could be almost completely buried beneath the mastectomy flaps. Therefore, no neurotomy between the sensory nerve and the fourth intercostals nerve was performed. After microvascular anastomosis, the well-perfused flap, weighing 1150 g, was trimmed to 750 g. To compensate for postoperative volume reduction and ptosis, the breast was reconstructed approximately 20% larger and placed slightly higher on the chest wall than the opposite breast (Fig. 4). The postoperative course was uneventful, and the patient left hospital 8 days postoperatively.

Discussion

Autologous breast reconstruction has evolved enormously in the last decade, especially since the introduction of the DIEP flap. Breast reconstruction with the DIEP flap can give excellent aesthetic results with little donor-site morbidity, making it popular with patients and reconstructive surgeons. An abdominal scar can interfere with the use of a DIEP flap, and a previous abdominoplasty can make it impossible to use this technique. In those patients where a DIEP flap is contraindicated, the surgeon has to look for alternatives. The LAP flap may be such an alternative. The flap is easy to harvest, no muscle is sacrificed and donor-site morbidity is minimal. The resulting scar is easily covered by underwear (Fig. 5). Kato et al are credited for their excellent cadaveric and clinical study of the pedicled LAP flap.⁷ Their fluorescein study showed that the skin territory supplied by the second lumbar artery alone extends from the posterior midline to the lateral border of the rectus sheath and up to 10 cm above the anterior superior iliac spine. The pedicled flap has proven its reliability in several publications.⁵⁻⁹ Dissection of six LAP flaps on fresh cadavers showed us that a pedicle length of 4 cm is easily achieved. The perforators arise between the erector spinae and quadratus lumborum muscles, and no intramuscular dissection is necessary. Preoperative

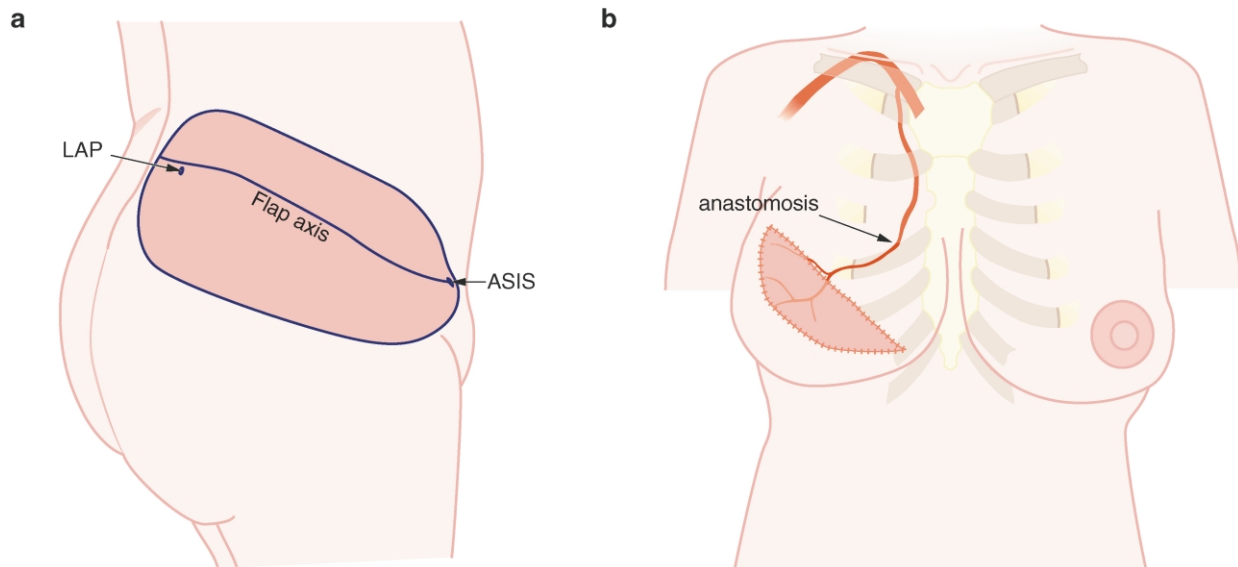


Figure 3—(a) Flap design, showing the lumbar artery perforator (LAP) and the anterior superior iliac spine (ASIS). (b) Partially buried flap anastomosed to the internal mammary vessels.

colour Doppler flowmetry aids the selection of the most suitable perforator. By anastomosing the perforator artery and its comitant vein to the internal mammary vessels, we were able to position the flap favourably on the thorax. Blondeel et al showed that nerve repair in free DIEP flaps leads to earlier postoperative restoration of sensation, increases the quality and quantity of sensation in the flap and has a higher chance of providing erogenous sensation.¹⁰ Isenberg made a similar obser-

vation in breast reconstruction with innervated TRAM flaps.¹¹ The sensory nerve supplying the LAP flap is easily identified intraoperatively. Anastomosing this nerve to the fourth intercostal nerve will probably give a sensate flap. The need to reposition the patient for breast moulding increases the operating time slightly. Postoperatively, patients may notice a slight hypoaesthesia in the L1 and L2 dermatomes. For cosmetic reasons, operative correction of the opposite flank may be necessary at a later date.

In conclusion, the free LAP flap can be used in autologous breast reconstruction as an alternative to other perforator flaps. The LAP flap is a reliable fasciocutaneous perforator flap. No intramuscular dissection is necessary, which makes the flap easy to harvest. Donor-site morbidity is minimal, and the resulting scar is easily hidden by underwear. Anastomosing the sensory nerve of the flap to the fourth intercostal nerve is an option.



Figure 4—Postoperative view at 3 weeks.



Figure 5—Donor-site scar 3 weeks after flap harvest.

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Intraneural ganglion cysts: a case of sciatic nerve involvement

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SUMMARY. The pathogenesis of intraneural ganglion cysts is unknown. Some authors have established a connection between the cysts and the joint, while others have failed to find this communication. Most intraneural ganglion cysts occur in the proximity of a joint. We present the case of a 53-year-old Caucasian male with an intraneural cyst of the sciatic nerve located high above its bifurcation and without a connection to the joint. The lesion was microsurgically removed in toto. There was no recurrence of the cyst at follow-up 9 months postoperatively; complete resolution of the clinical symptoms occurred within 8 months of surgery. This case shows that ganglion cysts can occur in locations far from a joint, supporting the extra-articular embryonic synovial remnant theory of their genesis. © 2003 The British Association of Plastic Surgeons. Published by Elsevier Science Ltd. All rights reserved.

Keywords: intraneural ganglion cyst, surgical management, sciatic nerve, MRI.

Intraneural ganglion cysts have been reported to communicate with a neighbouring joint,¹ but there are also publications suggesting the contrary.² Hypotheses regarding the pathogenesis of intraneural ganglion cysts include: metaplastic transformation of traumatic intra-epineural microhaemorrhage, degenerative changes occurring in the nerve sheath as a result of chronic irritation, loculation of intraneurally entrapped extra-articular embryonic synovial remnants, and ingrowth of an articular cyst into the nerve.

We report a case of an intraneural cyst presenting atypically in the sciatic nerve in the distal third of the thigh, well above the bifurcation of the nerve. Neither MRI nor surgical exploration established a connection to the articular space.

Case report

The patient was a 53-year-old roof-worker. For about a year he