Preoperative Planning of the Abdominal Perforator Flap with Multidetector Row Computed Tomography: 3 Years of Experience

Sir:

The first option in breast reconstruction with autologous tissue is currently the abdominal perforator flap. The microvascular anatomy of the abdominal wall varies greatly. The location, number, caliber, and intramuscular trajectory of perforator branches of the deep inferior epigastric artery differ not only from one individual to another but also from one hemiabdomen to the other. Presurgically established vascular map can facilitate surgical planning in each patient. Over the past 3 years in our hospital, we have routinely used the multidetector scanner for the preoperative study of deep inferior epigastric perforator type abdominal flaps in breast reconstruction.

Protocol Image Analysis

Step 1

First, on the axial view, the deep inferior epigastric artery was evaluated along its entire length from its origin, paying special attention to the intramuscular or retromuscular course. Second, we studied the perforator arteries that are dependent on the deep inferior epigastric artery. Their caliber, course, and anatomical relationships were evaluated, locating the exact point of emergence through the aponeurosis of the abdominal rectus (Fig. 1).

REFERENCES


The criteria for choosing perforators include the following:

1. \textit{Caliber.} The largest caliber, proportional to the blood flow; 0.6 to 3.2 mm was established as the useful range diameter.

2. \textit{Location.} We chose a perforator that allowed a flap design enabling a direct and aesthetic closure. This was preferably centered in the tissue to be transferred, although this was not indispensable.

3. \textit{Anatomical relationships.} We selected a perforator whose course facilitated dissection. A direct branch from the deep inferior epigastric artery was preferred because it was expected that the intramuscular course would be shorter, with fewer muscular branches. We also took into account whether the perforator vessel emerged from a tendinous band, as this type of perforator usually follows a retrovascular course that makes its dissection easier.

\textbf{Step 2}

We performed a three-dimensional reconstruction of the abdominal skin surface. According to a coordinate system whose center is the umbilicus, we associated each perforator with a coordinate point. Using this simple coordinate system, the perforator map was transferred to the data registration sheet before transfer to the patient’s skin surface (Fig 2). Our present results show that multidetector-row computed tomography is a highly reliable tool for identifying and locating the dominant abdominal perforator, with a positive predictive value of 100 percent. The ability of multidetector-row computed tomography to preoperatively detect the dominant perforator vessel leads to a significant saving in harvesting time—almost halved in our series—and a significant drop in postoperative complications, mainly those associated with partial necrosis of the flap and fat necrosis. Because the only new parameter introduced in our working method is multidetector-row computed tomography, it is logical to think that this improvement may be the result of choosing—with the help of multidetector-row computed tomography—the best abdominal perforator vessel for each flap, bearing in mind not only its caliber but also its course and anatomical relationships.

DISCLOSURES

None of the authors has any commercial associations or financial disclosures that might pose or create a conflict of interest with information presented in this article.

REFERENCES


Hidradenitis Suppurativa Sternalis: Surgical Treatment of This “No-Touch Zone.” A 10-Year Follow-Up

\textbf{Sir:}

Hidradenitis suppurativa is a chronic, socially debilitating disease of apocrine gland-bearing skin with a predilection for intertriginous areas. Our interest is focused on hidradenitis suppurativa sternalis. The cause is still not completely known, but medical treat-