

Umbilical Reconstruction After Repair of Large Umbilical Hernia: The “Lazy-M” and Omega Flaps

By Gabriel Tamir, and Edna Kurzbart
Ashkelon, Israel

A simple and easy-to-perform technique of umbilical reconstruction after repair of a large umbilical hernia is described. Two opposing skin flaps, an upper inverted Omega shaped flap, and a lower, lazy M-shaped flap were designed to create a deep, 3-dimensional, normal-appearing umbilicus in identical twins.

J Pediatr Surg 39:226-228. © 2004 Elsevier Inc. All rights reserved.

INDEX WORDS: Umbilical hernia, umbilical reconstruction, skin flaps.

UMBILICAL HERNIA is a common finding in infants. Most resolve spontaneously with time and need no surgical intervention because of a very low complication rate.¹ However, in larger-sized protruding hernias, the aesthetically displeasing residual redundant skin that usually follows calls for surgical reconstruction. Many techniques have been described to restore the navel, including combinations of local flaps, skin grafts, and cartilage in various degrees of umbilical absence,²⁻⁶ but few addressed the particular situation of a protruding large umbilical sac.

We describe the repair of a large congenital umbilical hernia in identical twins. The umbilicus was reconstructed with a technique of the so-called opposing *Lazy M* and *Omega* flaps, with a satisfactory outcome.

MATERIALS AND METHODS

Identical twin boys were born with protruding large umbilical hernias present at birth. After 34 weeks of spontaneous pregnancy, because of maternal hypertension, one of the twins was born after a simple delivery and the other one after a cesarian section, with birth weights of 2,450 and 2,540 g, respectively. Otherwise healthy, the twins were presented to our care at the age of 2.5 years for repair of the unappealing hernias. There were no events of hernia incarcerations, and there was no relative change in the size of the sacs during the years (Fig 1).

Under general anesthesia, the content of the umbilical hernia is gently reduced back into the abdominal cavity. The skin markings then are drawn: the empty sac is turned upward, and an M shaped figure is marked on its inferior base. Both legs of the M figure are located obliquely at the sides of the sac base; their height is about 1 to 1.5 cm, and the concave part of the figure is created in a semicircular fashion

so that a lazy M is produced (Fig 2A). The empty sac is then turned downward. An inverted omega-shaped figure is drawn, its horizontal arms extended toward the sides of the upper base of the sac, and then shifted a little inferiorly on the lateral edges to meet the legs of the lower M. The height of the U-shaped part of the omega figure is 1 cm long (Fig 2B). In case of broad lateral sides of the umbilical sac, free-hand vertical C-shaped lines are drawn to connect the arms of the M and the Omega figures. Through the lower M incision, the sac is dissected away from the skin above. With a good exposure, the hernia is identified and repaired in the usual manner. After reducing its content back to the abdominal cavity, the umbilical ring (and the peritoneum if needed) are sutured, and the overlying rectus abdominis fascia at the midline is brought together and closed. At this point, the upper Omega flap is incised along its lines, and the skin is excised. The lower pole of the Omega is sutured to the concave part of the opposing M with a 3-0 absorbable suture and tucked to the underlying fascia. Another 2 sutures to the fascia of the adjacent curves of the flaps are applied for better anchoring and to create a sufficient depth to the umbilical depression. The remainder of the free edges is sutured with 4-0 absorbable sutures, trying to embed as much tissue within the fossa. Extra skin on the lateral aspects is excised and sutured, trying to minimize the out-of-the circle scars. If needed, scars are oriented horizontally beyond the new umbilical borders. The wound then is dressed with paraffin gauze packed into the fossa to prevent adhesions and hematoma formation and taped above.

RESULTS

Figure 3 shows the immediate postoperative view. On 6-month follow-up, the healing process and aesthetic outcome were pleasing, natural-appearing navels were created, and the parents were satisfied with the end result (Fig 4A & B).

DISCUSSION

Although many techniques have been proposed to reconstruct a new umbilicus, only few have addressed the formation of such after repair of protruding umbilical hernias of infants.^{3,4} Most of the literature considering this topic refers to large abdominal wall defects such as omphalocele and gastroschisis,⁷⁻¹⁰ in which tissue is rather insufficient. In this particular clinical situation of protruding hernias, which normally resolve with no need

From the Units of Plastic Surgery and Pediatric Surgery, Barzilai Medical Center, Ashkelon, and the Faculty of Health Sciences, Ben-Gurion University of the Negev, Israel.

Address reprint request to Gabriel Tamir, MD, Plastic Surgery Unit, Barzilai Medical Center, Ashkelon, Israel 78306.

© 2004 Elsevier Inc. All rights reserved.

0022-3468/04/3902-0022\$30.00/0

doi:10.1016/j.jpedsurg.2003.10.022



Fig 1. Preoperative view of large umbilical hernias in identical twins.

to operate,¹ unpleasing redundant skin ensues in cases of large bulging sacs. The use of local flaps is well versed in umbilical reconstruction, and either skin flaps, skin and cartilage grafts, or combinations of these were already described in various clinical circumstances of umbilical absence.^{2,5,6,11-13}

In the unique incident of identical twins presenting with almost a similar defect, the technique could be checked and improved instantly. Both operations were performed subsequently, and the first patient has had a

larger sac (the right patient in Fig 1A and 4A). The lateral edges were minimally trimmed, and the scars became somewhat twisted and extended beyond the dimple margins. The second patient exhibited a smaller sac, and the redundant lateral edges were excised in a circular fashion toward the base of the M arms and tucked in for a better cosmetic result.

The Lazy M and inverted Omega flaps described here offer a simple, easy-to-plan and easy-to-use technique

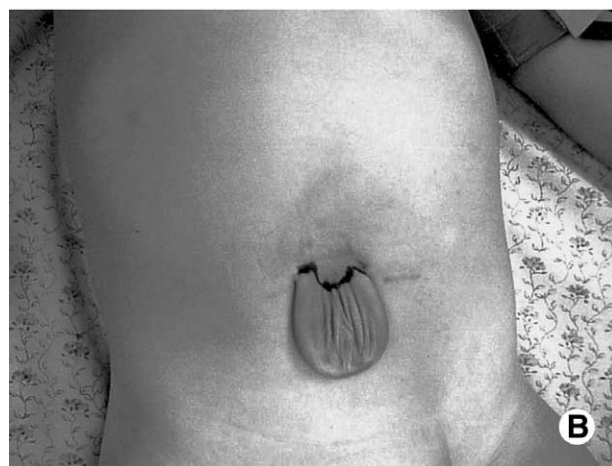
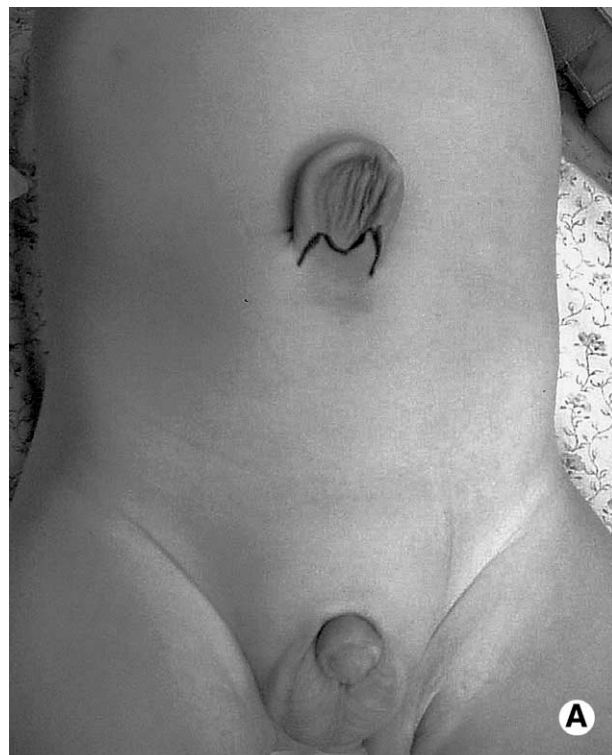


Fig 2. (A) Inferior M-shaped figure drawn on the empty sac. Note that the curve of the M is semicircular to match the opposing flap. (B) An inverted Omega-shaped figure is drawn at the superior part of the sac. In case of a broad sac, its arms should curve downward to meet the legs of the lower M figure.



Fig 3. Immediate postoperative view.

with predictable aesthetic result. Creation of a normal-looking navel with a good morphology and a 3-dimensional lasting structure with sufficient depth is the goal.¹⁴ The umbilicus is an important aesthetic detail in the abdominal wall; it is expected and accepted and creates a balance between the sides and the upper and lower

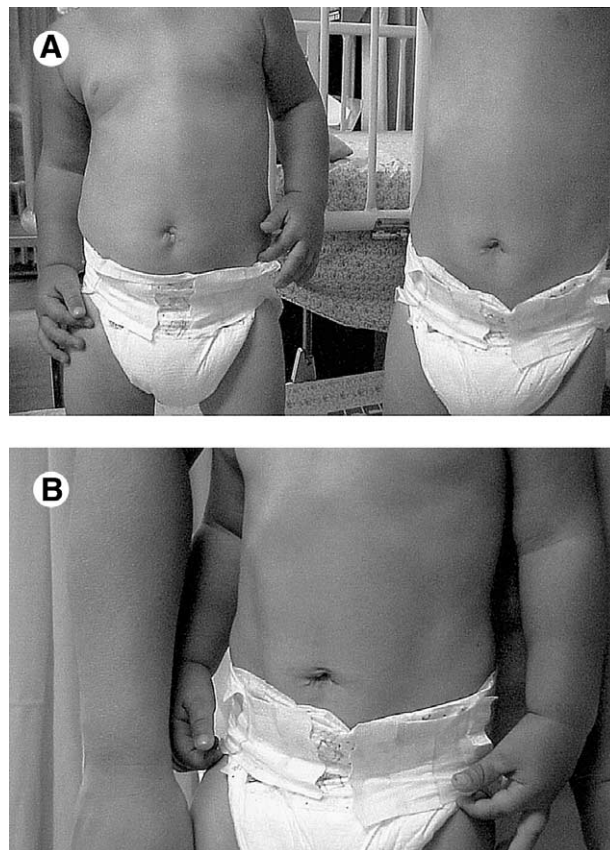


Fig 4. Six months after surgery. Note the normal-appearing umbilical depression with sufficient depth.

parts of the midbody.¹⁵ In the technique described above, we find that these goals are met.

REFERENCES

1. Skinner MA, Grosfeld JL: Inguinal and umbilical hernia repair in infants and children. *Surg Clin North Am* 73:439-449, 1993
2. Yotsuyanagi T, Nihei Y, Sawada Y: A simple technique for reconstruction of the umbilicus, using two twisted flaps. *Plast Reconstr Surg* 102:2444-2446, 1998
3. Park S, Hata Y, Ito O, et al: Repair of mild umbilical hernia. *Ann Plast Surg* 42:634-637, 1999
4. Frigo E, Rettinger-Schimmerl S, Rokitansky AM: Umbilicoplasty in neonates with primary omphalocele closure. *Pediatr Surg Int* 15:523-524, 1999
5. Miller MJ, Balch CM: "Iris" technique for immediate umbilical reconstruction. *Plast Reconstr Surg* 92:754-756, 1993
6. Marconi F: Reconstruction of the umbilicus: A simple technique. *Plast Reconstr Surg* 95:1115-1117, 1995
7. Soffer SZ, Rosen NG, Hong AR, et al: Cloacal exstrophy: A unified management plan. *J Pediatr Surg* 35:932-937, 2000
8. Uceda JE: Umbilical preservation in omphalocele repair. *J Pediatr Surg* 29:1412-1413, 1994
9. Feyaerts A, Mure PY, Jules JA, et al: Umbilical reconstruction in patients with exstrophy: The kangaroo pouch technique. *J Urol* 165: 2026-2027
10. Park S, Hata Y, Ito O, et al: Umbilical reconstruction after repair of omphalocele and gastroschisis. *Plast Reconstr Surg* 104:204-207, 1999
11. Schoeller T, Wechselberger G, Otto A, et al: New technique for scarless umbilical reinsertion in abdominoplasty procedures. *Plast Reconstr Surg* 102:1720-1723, 1998
12. Shinohara H, Matsuo K, Kikuchi N: Umbilical reconstruction with an inverted C-V flap. *Plast Reconstr Surg* 105:703-705, 2000
13. Lee SL, DuBois JJ, Greenholz SK, et al: Advancement flap umbilicoplasty after abdominal wall closure: Postoperative results compared with normal umbilical anatomy. *J Pediatr Surg* 36:1168-1170, 2001
14. Itoh Y, Arai K: Umbilical reconstruction using a cone-shaped flap. *Ann Plast Surg* 28:335-338, 1992
15. Baroudi R: Umbilicoplasty. *Clin Plast Surg* 2:431-448, 1975