Two-Stage neoumbilicoplasty. A new surgical technique

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BACKGROUND. An aesthetic umbilicus has been found to be essential in the appearance of the abdomen. This helps define the midline abdominal groove and adds to a well-formed abdominal curvature. OBJECTIVE: The goal of an aesthetically pleasing umbilicoplasty is to create a neoumbilicus with sufficient depth and convenient morphology, with a natural-looking top layer and minimal scarring. MATERIALS AND METODS: A two-stage surgical technique is proposed, the first for the placement of a conformer that will later form the new umbilicus and a second time to remove the conformer, reducing the possibility of complications. DISCUSION AND CONCLUSION: However, despite there exists currently several techniques described, a better perfusion of the tissues should be sought to reduce the possibility of necrosis. Here the proposal is a neoumbilicoplasty technique in two phases, which provides greater irrigation capacity, in addition to demonstrating better aesthetic results, even in its congenital absence.

Keywords: Umbilical reconstruction, Umbiliconeoplasty, Neo-omphaloplasty, Neoumbilicoplasty

Introduction

The umbilicus can be considered an aesthetic focus of the growing abdomen. In adults, it is located on the horizontal that joins the iliac crests. The outer part of the umbilicus, called the umbilical ring, has a variable shape, rounded or oval, and vertical or horizontal. A sloping depression, almost always asymmetric, separates it from the sulcus or bottom (1). Traditional umbilicoplasty involves transposition of the umbilicus through a newly formed hole in the abdominal skin flap (2). When an unforeseen rupture or an umbilical stem devascularization occurs, the creation of a new umbilicus known as a neoumbilicoplasty is required (3). The choice of the ideal aesthetic technique for neoumbilicoplasty remains a controversial issue. Nevertheless, all of these are intended to grant the patient a natural-looking umbilicus, vertically oriented, oval-shaped and with slight upper hood. It has been suggested that even when the umbilical stem is not interrupted, neoumbilicoplasty is superior to umbilicoplasty in certain situations related to the myofascial complex. When the plication distance is 10 cm or the umbilical stump is too short, the risk of umbilicus ischemia increases; in this case, neoumbilicoplasty has become the recommended technique (4).

We propose a technique to create a neoumbilicus deep enough and of convenient morphology, with a natural-looking top layer and minimal scarring. The technique that we present below is realized in two phases, in such a way, that it provides greater irrigation capacity. In addition, it has been shown to present better aesthetic results, even in its congenital absence.

Surgical technique

The procedure was performed under epidural block and in two surgical phases:

First phase: Prior to marking the conventional abdominoplasty, a transverse incision was made dissecting the camper fascia and the scarp until the aponeurosis was visualized (Fig 1a and 1b). The umbilical scar was disinserted for dissection from the abdominal flap to the xiphoid appendix. Subsequently, a flaccid abdominal wall was visualized and marked for rectal plication with separate X-shaped stitches (using 1-0 vicryl) and running suture (using 1-0 prolene). Next, a plication was made at the level of the umbilical scar, where a silicone conformer was placed. The conformer was fixed with 2-0 prolene to the aponeurosis, the plication was complete, and the flap was adjusted by cutting the abdominal flap. Finally, the closure was performed by planes through separate points with vicryl 0, posterior intermediate vicryl 2-0 and subdermal closure with monocryl 3-0. The patient was monitored for 24 hours and discharged with an appointment in 3 months to continue with the second

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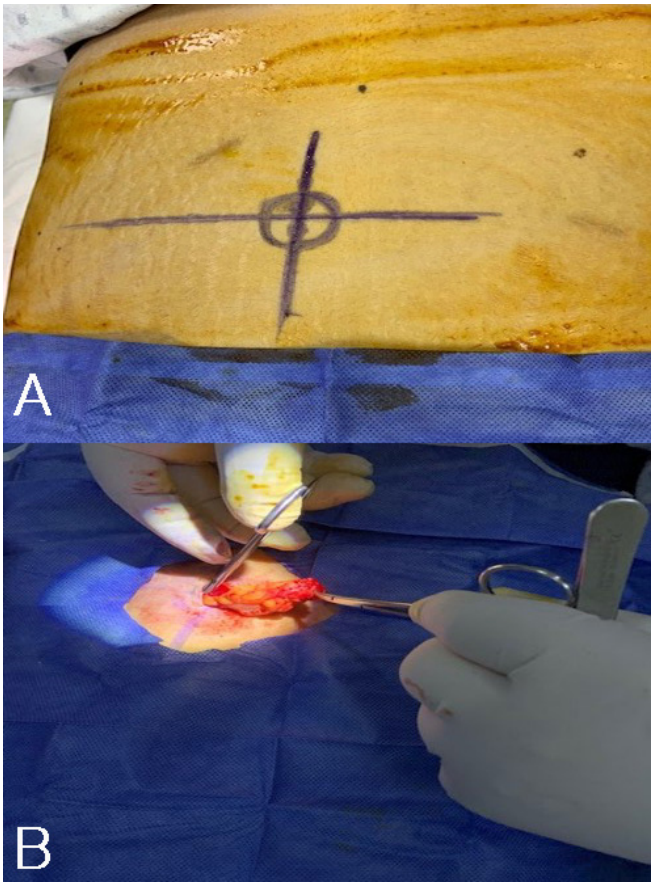

Figure 1. A. Marking to locate the conformer. B. Subcutaneous undermining is performed, removing adjacent subcutaneous cellular tissue.

part of the procedure. Second phase: Asepsis and antisepsis were previously performed, and a 1.5 cm vertical line incision was made. A subcutaneous undercut of approximately 2 mm was carried out along the incision and the adipose tissue was resected until the capsule of the silicone conformer was found. The capsule was then resected, and the silicone conformer removed (Fig 2). Subsequently, a suture was placed vertically in the aponeurosis (Fig 3a and 3b), externalizing the suture towards the skin at the cephalic apex of the incision. Likewise, a suture needle was reintroduced through the same exit site, verifying that it did not cause cutaneous bridging.

In the subdermal plane, the suture was directed towards the caudal edge of the incision, externalizing to the skin. The suture was reintroduced through the exit site and tied, confirming that the knot was inverted and could not be seen at the edges (Fig. 4a). The contralateral side maneuver was repeated. Inverted stitches were placed on the cephalic and caudal vertices of the incision and the coping of the edges was verified (Fig 4b). Finally, simple stitches were placed for the adequate closure of the dermal plane (Fig 5). This technique allowed us to maintain a convenient state of irrigation as well as favorable aesthetic results (Fig. 6a and 6b) that were very well accepted by the patient. Pre and post-surgical evidence

Figure 2. Silicone conformer is retired.

is presented from two of our cases (Fig. 7a and 7b) (Fig. 8a, b and c).

Discussion and conclusion

The umbilicus is located at the intersection of the vertical line that joins the xiphoid and the middle pubis, and the horizontal line that joins the superior iliac ridges. The umbilicus may be absent due to some congenital abnormalities such as gastrochisis and cloacal exstrophy or omphalocele; inflammatory conditions as necrotizing fasciitis and umbilical sepsis; and surgical causes as umbilical herniorrhaphy or skin cancer ablation surgery. The goal of any reconstructive procedure of this type should be an aesthetically pleasing navel with a natural appearance, adequate depth and permanent (5). The technique that we propose here has resulted in a high degree of aesthetic satisfaction for the user, as well as being attractive to the doctor who performs it thanks to the minimization of tissue necrosis risk.

There are different techniques to perform an umbilicoplasty that range from cutting the umbilicus and placing it in a new anatomical area, to performing a new one with neighboring skin. In an extensive review by Andrea Sisti et al. (6), it is mentioned that sixty different techniques were described in seventy-seven articles by different authors. Among the most used techniques is found the neophaloplasty from

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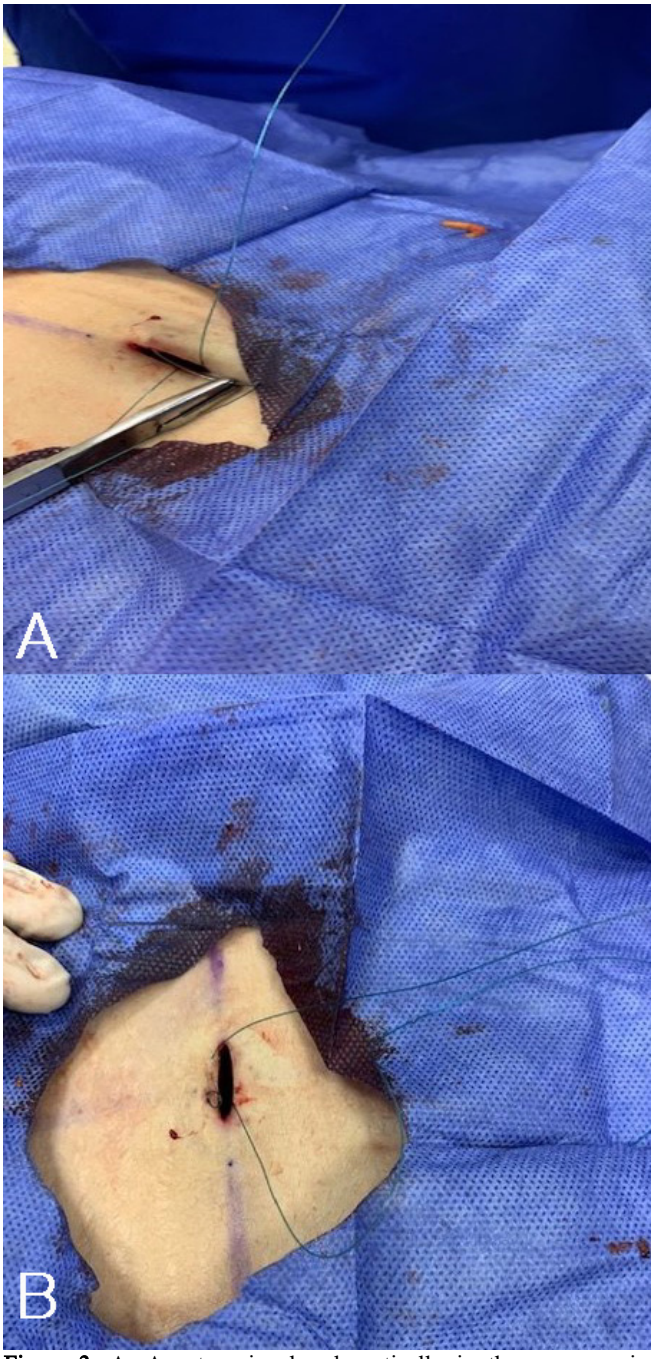

Figure 3. A. A suture is placed vertically in the aponeurosis, externalizing the suture towards the skin in the cephalic vertex. B. The suture needle is reintroduced through the same exit site, it is externalized to the skin, it is reintroduced, and it is tied.

flaps. Others, such as Korachi et al. (7) and da Silva Júnior and de Sousa (8), described an umbilicoplasty techniques without scars. These include degreasing a circular area of the abdominal flap, creating an umbilical depression with several insertion points transfixed in the lower fascia muscle. All techniques have been shown to provide favorable results. However, until there is a consensus or flow chart of procedures to choice in specific cases, it is the responsibility of each surgeon. The current literature with firm evidence, the needs of the patient, the skills of the performer and the minimization of risks must be

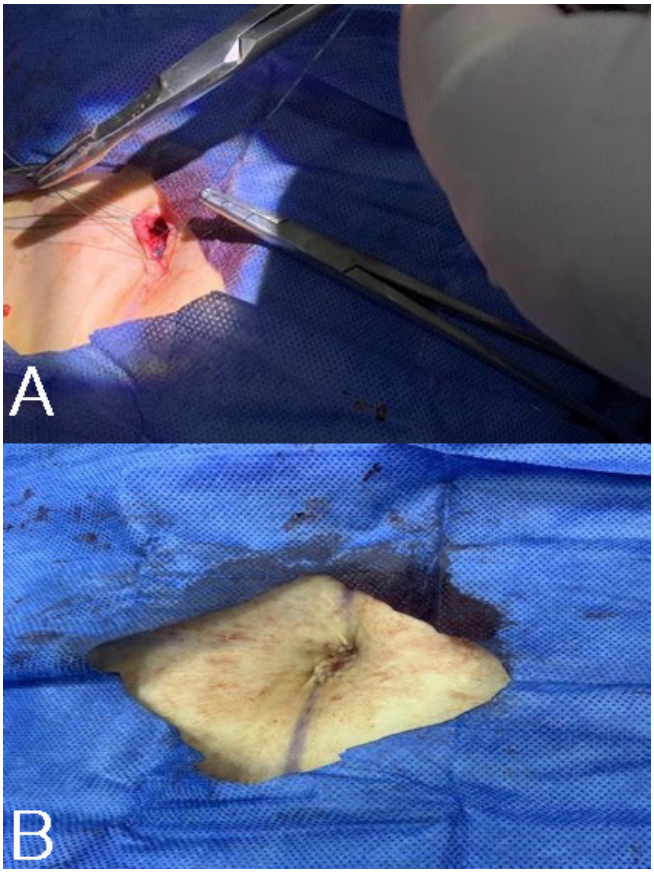

Figure 4. A. Inverted stitches are placed on the cephalic and caudal vertex of the incision. B. Edge coping is done with inverted points.

taken into account. The above, to achieve good tissue irrigation, characteristics that we can offer with our surgical technique.

Conflicts of interests

There was no conflict of interest during the study, and it was not funded by any organization.

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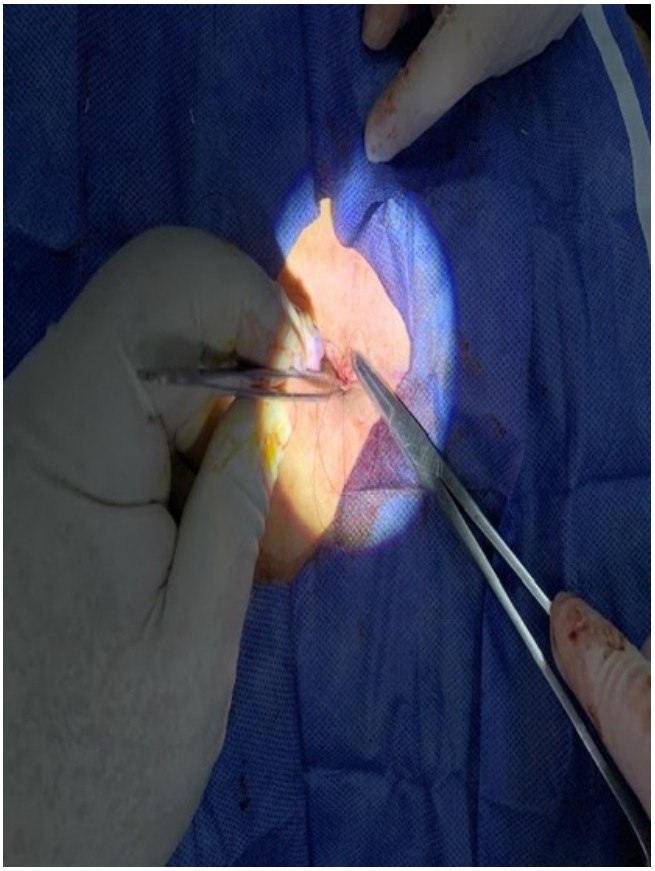

Figure 5. Simple stitches are placed for proper closure of the dermal plane.

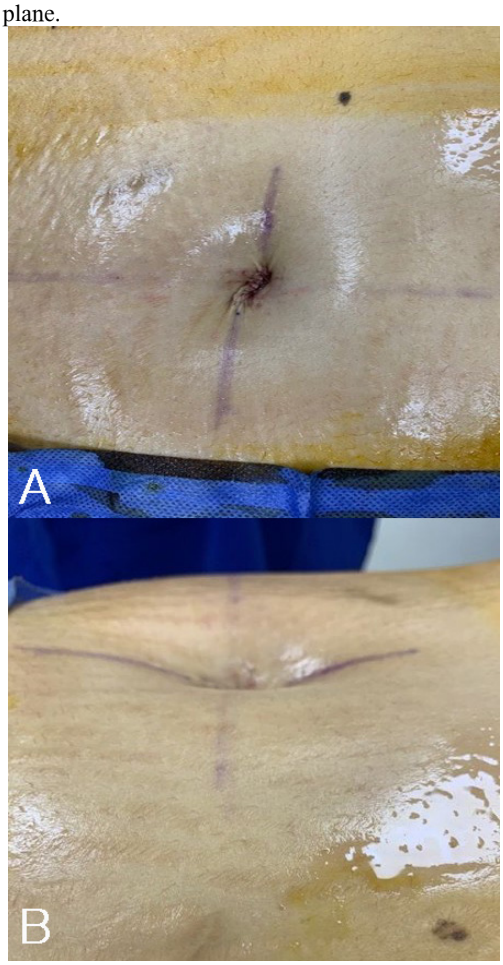

Figure 6. A. Final result of anteroposterior view, with an ovaloid undercut that resembles an umbilicus. B. Final result of lateral view, a deep groove is observed in the new umbilicus.

Figure 7. Left. Patient prior to his first procedure anteroposterior view. Right. Patient after his second procedure anteroposterior view.

Figure 8. Left. Patient prior to the first procedure anteroposterior view. Middle. Patient after the first procedure anteroposterior view. Right. Patient after the second procedure anteroposterior view.

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