Y-to-V umbilicoplasty for proboscoid umbilical hernia

Hisham A. Almetaher, Mohamed S. Hashish and Essam A. Elhalaby

Background/purpose **Several techniques are proposed for reconstruction of proboscoid umbilical hernia in the pediatric patients. In this work, we reported our experience with Y-to-V umbilicoplasty in the surgical repair of proboscoid umbilical hernia in infants and children.**

Patients and methods **A 3-year prospective study included 15 children presented with proboscoid umbilical hernia. A skin marker was used to draw the lines of skin incisions. 'Y' incision was done starting with the vertical limb. The facial defect was repaired. Lateral twin isosceles triangular flaps were excised. A new umbilical valley was reconstructed by one or two subcutaneous stitches of the residual umbilical flap fixing the flap's summit to the aponeurosis plane. We appreciated the results as excellent, fair or bad according to criteria of the peripheral rim (raised, flattened or depressed) and the central depression (deep, shallow or absent).**

Results **This study included 10 boys and 5 girls. Their ages ranged from 1 to 7 years at the time of surgery. The mean duration of the operation was 45 min and the mean hospitalization stay was 1 day. The early results were excellent in all cases. Follow-up period continued for 6 months and revealed a natural-looking umbilicus with excellent peripheral rim and central depression.**

Conclusion **Y-to-V umbilicoplasty in the surgical repair of proboscoid umbilical hernia in infants and children is simple and easy to design and carried out with excellent aesthetic results.** ***Ann Pediatr Surg*** **12:133–136 © 2016 Annals of Pediatric Surgery.**

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Introduction

Umbilical hernia is a common surgical condition seen in infants and children with a small facial defect; it usually closes spontaneously by the age of 1 year [1]. The skin covering an umbilical hernia may continue to grow and result in a proboscoid umbilical hernia [2]. Blumberg described the proboscoid variety of umbilical hernia as a large hernia with downward displacement of the umbilicus, with a fascial defect of more than 1.5 cm [2]. Repair of proboscoid umbilical hernia may yield poor results, because of the redundant umbilical skin, flat umbilicus, or unsightly scar, which are unsatisfactory to both treating physicians and parents [3]. The number and variety of articles in the literature on the repair of this condition ascertain the fact that there is no single ideal approach to its surgical management [4]. Repair techniques can be classified into suture fixation methods and flap methods [5].

In this article, we report our experience with Y-to-V umbilicoplasty in the surgical repair of proboscoid umbilical hernia in infants and children.

Patients and methods

After obtaining approval of the ethics committee, this prospective study was conducted at the Pediatric Surgery Unit, General Surgery Department, Tanta University Hospitals (Tanta, Egypt), between May 2013 and May 2016. Our study included 15 children with proboscoid umbilical hernias and protruding skin. The parents of each child were informed about all the steps of our study, including the operative technique, and an informed consent was obtained from all parents. Privacy of the participants and confidentiality of the data were maintained.

The lines of skin incisions were drawn using a skin marker (Fig. 1). The 'Y' incision was performed starting with the vertical limb. A subcutaneous circular dissection was performed leading to the hernial sac, which was then resected (Fig. 2). The facial defect was repaired as usual using nonabsorbable suture (Fig. 3). The redundant skin was excised after making lateral twin isosceles triangular flaps with their lower bases on both sides of the abdominal median line (Fig. 4). The 'V' limbs were formed by this resection, and a new umbilical valley was created by one or two subcutaneous stitches of the residual umbilical flap, with the flap's summit fixed to

Fig. 1

The lines of skin incisions.

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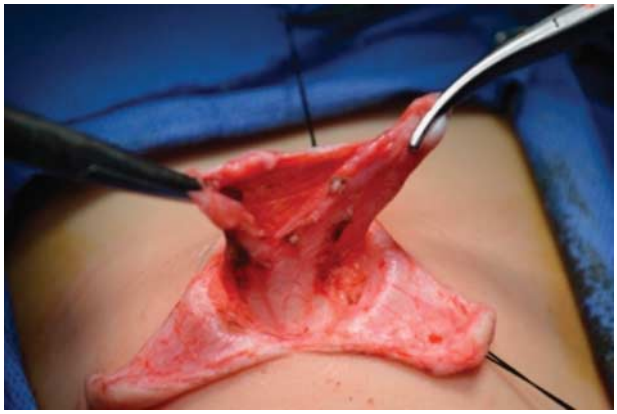
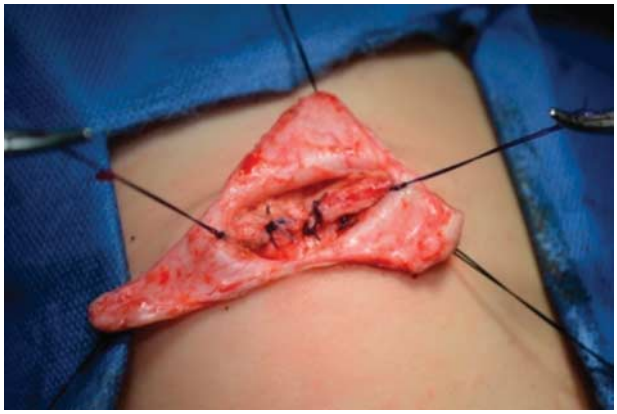
Fig. 2



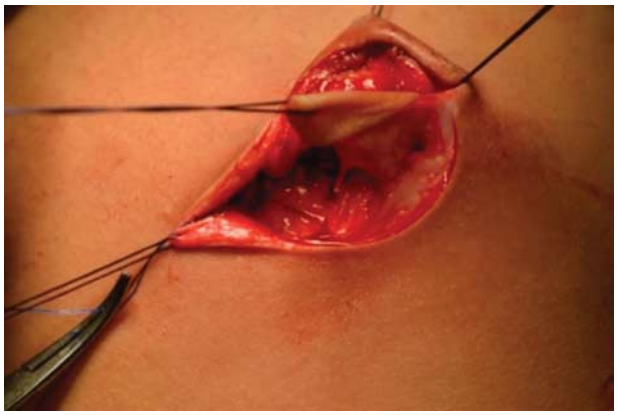
A subcutaneous circular undermining was performed leading to the peritoneal sac of hernia.

Fig. 3



Repair of the facial defect.

Fig. 4



Excision of skin excess after making lateral twin isosceles triangular flaps.

the aponeurosis plane (Fig. 5). Next, the wound was closed in the usual manner in two layers using absorbable suture. The procedure was completed by packing gauze

Fig. 5

Reconstruction of a new umbilical valley.

Table 1 Patients characteristics and post operative results

Patient characteristics	Variables ($n=15$ cases)
Sex	
Male	10
Female	5
Age (years)	1–7
Mean operating time (min)	45
Postoperative hospital stay (h)	24
Postoperative complications	
Wound seroma	2 cases

Fig. 6

Early post operative appearance after two months.

in the formed umbilical depression to prevent seroma formation.

We appreciated the results as excellent, fair, or bad according to criteria of the peripheral rim (raised, flattened, or depressed) and the central depression (deep, shallow, or absent).

Results

This technique was performed in 15 children (10 boys and five girls) who presented with proboscoid umbilical

hernia with protruding skin. Their ages ranged from 1 to 7 years at the time of surgery. The mean duration of the operation was 45 min, and the mean hospitalization time was 1 day (Table 1). The early results were excellent in all cases. Only two cases showed seroma in the wound. None of the cases showed ischemic changes or infection in the umbilical wound. The follow-up period extended to 6 months and revealed a natural-looking umbilicus with a flat peripheral rim and central depression, and the families were satisfied with the aesthetic results (Fig. 6).

Discussion

Pediatric umbilical hernia is classified according to the facial defect diameter into three classes: class I, in which the defect I less than 1.5 cm, class II, in which the defect diameter ranges between 1.5 and 3 cm, and class III, in which the defect diameter is more than 3 cm. With the exception of class I hernias, which usually close by 5 years of age without interference, larger defects of classes II and III do not close without surgical repair [2,6].

The proboscoid variety of umbilical hernia protrudes through the fascial defect with downwards growth. Treatment of proboscoid umbilical hernia in children includes two steps: umbilical ring closure and aesthetic reconstruction of the umbilicus [6]. It should be corrected before school age to avoid psychological disturbances for the child [6].

The ideal umbilicoplasty creates a permanent, round-shaped depression in the mid-abdomen with minimum scar formation. The upper edge should have a slightly hooded skinfold [7,8]. Many techniques have been reported in the literature for umbilicoplasty, and these techniques can be classified into suture fixation methods [4,9–13] and flap methods [14–18]. Suture fixation methods are favorable for obese adults with thick deposits of subcutaneous fat. However, these methods are inappropriate for pediatric patients and adolescents with a thin layer of subcutaneous fat. Conversely, flap techniques permit creation of a deep umbilical depression [16].

Simple and easily performed methods that are reported in the literature do not give much attention to aesthetic umbilical reconstruction, although they solve the problem of skin redundancy [19,20].

Our study on the umbilical skin 'Y-to-V' plasty gives attention to aesthetic surgery together with repair of the fascial defect as well as provides optimal, different umbilical cosmetic criteria.

Maintaining the umbilical rim is essential in our technique, and it is one of the determinant factors in the aesthetic aspect of the umbilicus. It gives the neo-umbilicus its diameter. It is elevated in infants and young children and becomes flattened when the abdominal panniculus becomes thickened. In our study, symmetric flaps with equal basis and equal height gave the advantage of having an ideal, regular, and complete rim.

Central depression is another determinant factor in the cosmetic aspect of the umbilicus. Its depth gives the umbilicus its normal shape. In our technique, suture fixation of the flap's summit to the aponeurosis creates this depression. One of the essential aspects and challenges of all the techniques of umbilicoplasty is the avoidance of an added scar. Surgeons try to create a neo-umbilicus similar to the normal one, without additional scars, if possible. The Y-to-V umbilicoplasty allows having a neoumbilicus with minimal scarring.

The excision of redundant skin has to be performed carefully with meticulous technical procedures. The equal lengths of the 'V' segments are of most importance aesthetically. This resection is performed using the isosceles triangle design for skin excision. These lateral symmetrical triangles have their lower bases coexisting with the umbilical groove.

We did not encounter wound infection in our study because we used slow resorption suture for orifice closure.

An important advantage of this method is that it can be easily performed, and that it produces a normal-appearing umbilicus. Moreover, the technique leaves an unremarkable scar.

Conclusion

Y-to-V umbilicoplasty in the surgical repair of proboscoid umbilical hernia in pediatric patients is simple and easy to design and perform. This technique maintains the normal umbilical structure and produces a normal-appearing umbilicus with excellent aesthetic results, as well as optimal repair of a hernia defect.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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