The umbilical cutaneous “Y-to-V” plastic surgery in the care of pedunculated umbilical hernia in the infant and the child

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ABSTRACT

Pedunculated umbilical hernia in the African infant and child raise an important cosmetic problem by the skin excess they present. Several solutions are proposed from simple reduction to complete cutaneous excision followed by skin grafting. In this paper we report our experience of umbilical cutaneous “Y-to-V” plasty in surgical hernia repair in the infant and the child in Senegal. A two years prospective study includes hernia with diameters included in 2–5 cm and a height or cutaneous projection of at least 1.5 cm. The surgical procedure starts with pencil drawings; follows a primary incision of the vertical branch of the “Y” and a circular subcutaneous undermining. Then, herniorrhaphy is performed and umbilical skin excess resected according to lateral twin isosceles triangles flaps making the “V”. Finally we perform subcutaneous quilting stitches of the umbilical residual flap and intradermal running suture of the wound. Aesthetic variables such as scar quality, shape and depth of the new umbilical valley, aspects of peripheral landscape, are itemized and analyzed. The cohort was made up of 80 children; 50 females and 30 males, among which 60 infants aged between one to six months. The age average is 5 months with extremes of 1 month and 7 years. The operations were performed by the same surgeon. The post-operative follow up has had no repercussions, except in five cases where we have noticed superficial suppuration. The recorded results using evaluation criteria are good in 70 cases (New umbilical valley well-drawn, peripheral landscape with clear outlines, scar hidden away), satisfactory in 7 cases (New umbilical valley little-drawn, peripheral landscape, visible scar) and bad in 3 cases (Nonexistent umbilical valley, hypertrophic peripherallandscape, unsightly scar). The authors of this paper highlight the need for aesthetic surgery together with parietal defect repair and give precise different umbilical cosmetic criteria.

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A general anesthesia is administered in all cases with paraumbilical nerve blocks. There was no need for intubation after the age of 3 months in contrast to infants under 3 months-old that went for orotracheal intubation. The umbilical cutaneous plasty is fulfilled systematically after herniorrhaphy by a supra- or sub-umbilical approach. The aesthetic results are assessed on scar quality, the shape and depth of the new umbilical valley and aspects of peripheral landscape.

2. Results

Eighty children, fifty females and thirty males, among which sixty infants aged between 1 and 6 months, were operated on following this procedure. The average age of the patients was 5 months with extremes of 1 month and 7 years. Surgery was motivated by abdominal pain and aesthetic concern in 72 cases whereas for the 8 other children the operation was justified by recurrent strangulation.

Five cases of supputation occurred which required a healing assistant whereas for all other patients primary wound adhesion was obtained within 5–7 days using Eosin and Vaseline. The results were aesthetically excellent in 70 cases with an umbilical well-shaped valley, well-designed peripheral landscape and a hidden scar (Table 1; Fig. 5).

3. Discussion

Voluminous umbilical hernia is frequently associated with the black African. The prevalence of this condition according to age varies from one country to another. It occurs in early childhood between 3 years and 5 years in 61.5% of the cases in NIGER and according to FARGY it reached 5% of infants and up to 50% of the children in some African regions. Our study reveals an infant predominance of around 5-months-old in 75% of cases [3,4]. The age younger than most recommended is due to the fact that in our practice umbilical hernia and abdominal pain are strongly correlated in infancy and strangulation condition is not rare.

Indication of a general anesthesia with orotracheal intubation was applied to all our patients whose age was under 3 month-old. This approach intended to improve peroperative comfort of the child and to prevent frequent bronchospasm at that age.
The study of the technical approach was limited to pedunculated hernias with a diameter included in 2 to 5 cm. These indicated limitations of the umbilical “Y-to-V” cutaneous plasty were motivated on one hand by the concern to preserve an umbilical cutaneous flap and on the other hand in order to exclude the umbilical reconstruction after complete cutaneous excision from our study. CANNISTRA reserved his “double M” plastic surgery procedure with minimal scar, to umbilical hernias with collar diameters inferior to 5 cm [5].

The excision of cutaneous umbilical excess has to comply with precise and rigorous technical procedures. The equal lengths of the “V” segments are of capital importance as regards aesthetic. This resection is realized using a geometric design in the form of an isosceles triangle skin excision. These lateral twin triangles have their lower bases coinciding with the umbilical groove.

In 2002, SANKALE at DANTEC Hospital proposed three procedures of umbilical cutaneous plastic surgery according to the size of the hernia. They were in the form of an arc-shaped left lateral excision, a “Horseshoe” excision or a total skin grafting surgery after complete umbilical cutaneous resection [6].

The “Y-to-V” plasty, by pre-established land-marks with various geometrical references, brings precision mainly in cutaneous resection. It seems important also to us, to rebuild umbilical valley by fixing the residual skin flap with subcutaneous quilting stitches.

Subcutaneous quilting stitch (New Valley)

The repair of pedunculated umbilical hernia in the infant and the child within “Y-to-V” skin plasty shows aesthetically good results in more than 87.5% of our cases. We used non absorbable braided suture for orifice closure but we think that an alternative to that procedure is the use of slow resorption suture to prevent the suppuration we have experienced in 5 patients. Simple, easily implemented methods which are proposed in the literature do not focus on umbilical cosmetic reconstruction, although they bring a solution to skin excess [9].

Our technique highlights the importance of aesthetic units that constitute orientation, depth and peripheral landscape of the umbilical valley.

4. Conclusion

The pedunculated umbilical hernia with a collar diameter included in 2–5 cm is frequent in African infant and child. Its surgical repair by umbilical aponeurosis closure is simple. Different excision techniques of skin excess are described with good outcomes often with regards to the scar. Our study on the umbilical skin “Y-to-V” plasty proposes and highlights the need of aesthetic surgery together with parietal defect repair and gives precise different umbilical cosmetic criteria.

Appendix. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.epsc.2014.09.005.

References