Management of Patent Omphalomesenteric Duct - Is Umbilicoplasty Is Must? In Neonates

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Abstract: Patent omphalomesenteric duct (POMD) a rare entity, reportedly occurring in approximately 15% omphalomesenteric duct anomalies. The basic step in the treatment of POMD is to excise the whole tract extending from umbilicus to intestine. As the approach dealing with such anomalies involves the umbilicus so it becomes mandatory not only to achieve a cure but also a good cosmetic result. This study is conducted to describe a new operative technique which not only provides an adequate exposure to peritoneal cavity but also achieves a better cosmetic result without umbilicoplasty. Material and Method: This is a prospective study carried. A total of 42 cases of POMD were operated by the new technique described below during last 12 years (Jan 2006 – Dec 2018). All patients of POMD admitted during this period were included in study. Steps of operation: 1) Lower midline infra umbilical incision of about 3 cm. (figure -1) Peritoneal cavity was approached by incising subcutaneous tissue, linea alba and peritoneum. 2) The POMD was hooked and with gentle traction as its junction was carefully separated from the umbilicus from inside without opening the umbilicus. (figure – 2 and 3) 3) Intestine was explored and end to end single layerd anastomosis was done after excising the patent duct. 4) Lower midline incision was closed in layers. (Figure – 4). Conclusion: In our new approach, the incision is far away from the umbilicus and is in the midline, provides adequate exposure and good cosmetic result with minimal blood loss.

1. Introduction

The patent omphalomesenteric duct (POMD) occur infrequently1,2. It has been reported thatapproximately 10 % of patients with a Meckel’s diverticulum have a fibrous cord attached to theumbilicus3. It has also been reported that a POMD may regress spontaneously andresult in a Meckel’s diverticulum with no connection to the umbilicus4. If the omphalomesenteric duct is patent from theterminal ileum to the umbilicus, fecal umbilical drainage will beobserved5. Omphalomesenteric duct anomalies occur inapproximately 2 % of newborns. In 6 % of these the ductremains patent, with 20 % of POMD cases beingcomplicated by intussusception of the small bowel through thepatent duct6. This condition is eight times more commonin males; and 73 % of these cases exhibit symptomswithin the first 28 days of life6,7. Another significantcomplication is progressive prolapse of the protrusion through theumbilicus7,8. Several studies have reported that aPOMD can cause episodes of cramping, abdominal pain anddischarge from the umbilicus8,9. Different surgicaltechniques had been described for treatment of POMD, inpresent series we describing a new approach for resection ofpatent omphalomesenteric duct (POMD) withoutumblicoplasty.

2. Method

This is a prospective study carried out in Department ofPediatric Surgery IMS BHU and SGPGIMS a tertiary carecenter for pediatric patients. A total of 42 cases of POMDwere operated by the new technique described below duringlast 12 years (Jan 2006 – Dec 2018). All patients of POMDadmitted during this period were included in study. Allpatients of POMD were prepared for surgical treatment bymaking them nil per month for 4 hours before surgery, withsupportive intravenous fluid and antibiotics without bowelpreparation.

Steps of operation:

1) Lower midline infra umbilical incision was made of about 3 cm. (figure -1) Peritoneal cavity was approached by incising subcutaneous tissue, linea alba and peritoneum.
2) The POMD was hooked and with gentle traction as its junction was carefully separated from the umbilicus from inside without opening the umbilicus. (figure – 2 and 3)
3) Intestine was explored and end to end single layered anastomosis was done after excising the patent duct using Vicryl 5-0 interrupted inverting suture.
4) Lower midline incision was closed in layers. (Figure – 4).

3. Discussion

The goal of surgical repair in cases of POMD is to excise thepatent OMD and to achieve a good cosmetic result. As theapproach dealing with such anomalies involves theumbilicus it become mandatory not only to achieve a curebut also a good cosmetic result.

Moore T10 and White R et al11 suggested that all umbilicalfistula and sinuses can be excised through a transverseelliptical incision around the umbilicus and excision ofumbilicus done in all cases and it’s repair requiredumblicoplasty. Nixon proposed a transverse incision in theright iliac fossa for POMD correction but the cosmetic valueis not appreciable. These operative techniques give betterexposure to the peritoneal cavity but cosmetic result wasnot up to mark.

Shaw A et al12 demonstrated that the excision of theumbilicus through intra-umbilical incision circumscribing thecutaneous orifice and coring out the tract has bettercosmetic result. H. A. Segawat et al.13 used a circular incisionaround the umbilicus with excision of the umbilicus andumblicoplasty with good cosmetic result. Seth N. P.14 had described semicircular infra-umbilical incision forPOMD with better cosmetic result. Asano S15 et al
described an umbilical core-out operation for a completely patent vitelline duct without need of laparotomy and achieved good cosmetic results. The operative techniques described above, produce better cosmetic result but exposure to peritoneal cavity was not adequate. Gangopadhyayet et al. described infra-umbilical midline approach for adequate exposure and appropriate cosmetic result. All procedures described above required umbilicoplasty but umbilicoplasty has it’s own complications.

Laparoscopic resection of the POMD has also been performed in adult[17], but this technique does not seem to be advantageous in children[18]. Firstbecause the total length of the opening for two trocars is bigger than the length of the peri-umbilical incision, and second because not every centre has the equipment to perform laparoscopy in new born patients.

The goal of surgical repair for POMD is to excise the patent duct and achieve a good cosmetic result for that reason we described a new operative technique which gives adequate exposure to peritoneal cavity, minimum bleeding (mid line incision), less time consuming (only linea alba is incised), and better cosmetic result (umbilicoplasty is not required).

Though Giacalone Get al. used infra umbilical semicircular incision for POMD without need of umbilicoplasty but it is a muscle cutting incision and dose not gives adequate exposure to peritoneal cavity.

4. Conclusion

In our new approach, the incision is far away from the umbilicus and is in the midline, provides adequate exposure and good cosmetic result with minimal blood loss.

References


Legends for figure

Figure- 1: Showing infra-umbilical incision well below the umbilicus exposing linea alba

Figure- 2 & 3: Showing patent omphalomesenteric duct is separated from the umbilicus, retaining the native umbilicus

Figure- 4: Normal umbilicus and infra-umbilical incision after proper repair of Patent omphalomesenteric duct
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