

Management of Patent Omphalomesenteric Duct - Is Umblicoplasty 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 umblicoplasty. **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 layered 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 infrequently^{1,2}. It has been reported that approximately 10 % of patients with a Meckel's diverticulum have a fibrous cord attached to the umbilicus³. It has also been reported that a POMD may regress spontaneously and result in a Meckel's diverticulum with no connection to the umbilicus⁴. If the omphalomesenteric duct is patent from the terminal ileum to the umbilicus, fecal umbilical drainage will be observed¹. Omphalomesenteric duct anomalies occur in approximately 2 % of newborns. In 6 % of these the duct remains patent, with 20 % of POMD cases being complicated by intussusception of the small bowel through the patent duct⁵. This condition is eight times more common in males; and 73 % of these cases exhibit symptoms within the first 28 days of life^{5,6}. Another significant complication is progressive prolapse of the protrusion through the umbilicus^{7,8}. Several studies have reported that a POMD can cause episodes of cramping, abdominal pain and discharge from the umbilicus^{8,9}. Different surgical techniques had been described for treatment of POMD, in present series we describing a new approach for resection of patent omphalomesenteric duct (POMD) without umblicoplasty.

2. Method

This is a prospective study carried out in Department of Pediatric Surgery IMS BHU and SGPGIMS a tertiary care center for pediatric patients. 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. All patients of POMD were prepared for surgical treatment by making them nil per mouth for 4 hours before surgery, with supportive intravenous fluid and antibiotics without bowel preparation.

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 the patent OMD and to achieve a good cosmetic result. As the approach dealing with such anomalies involves the umbilicus it become mandatory not only to achieve a cure but also a good cosmetic result.

Moore T¹⁰ and White R et al¹¹ suggested that all umbilical fistula and sinuses can be excised through a transverse elliptical incision around the umbilicus and excision of umbilicus done in all cases and it's repair required umblicoplasty. Nixon proposed a transverse incision in the right iliac fossa for POMD correction but the cosmetic value is not appreciable. These operative techniques give better exposure to the peritoneal cavity but cosmetic result was not up to mark.

Shaw A et al¹² demonstrated that the excision of the umbilicus through intra-umbilical incision circumscribing the cutaneous orifice and coring out the tract has better cosmetic result. H. A. Segawate et al.¹³ used a circular incision around the umbilicus with excision of the umbilicus and umblicoplasty with good cosmetic result. Seth N. P.¹⁴ had described semicircular infra-umbilical incision for POMD 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. Gangopadhyay et al¹⁶ described infra-umbilical midline approach for adequate exposure and appropriate cosmetic result. All procedures described above required umblicoplasty but umblicoplasty has it's own complications.

Laparoscopic resection of the POMD has also been performed in adult¹⁷, but this technique does not seem to be advantageous in children¹⁸. First because 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 newborn 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 (umblicoplasty is not required).

Though Giacalone et al¹⁹ used infra umbilical semicircular incision for POMD without need of umblicoplasty but it is a muscle cutting incision and does not give 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.

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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

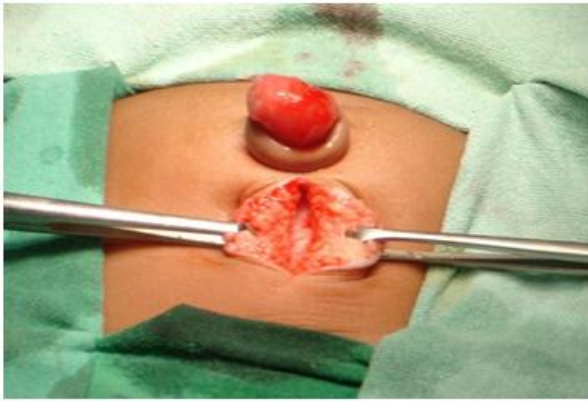


Figure 1



Figure 4



Figure 2



Figure 3

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