CASE REPORT OPEN ACCESS

Sutureless Plastic Gastroschisis Repair in Perspective of a Developing Country: A Case Report

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ABSTRACT

Background: Gastroschisis is congenital abdominal wall defect in neonates which needs to be addressed immediately after birth. Various techniques for closure of the defect have been described in literature.

Case Report: We describe a sutureless closure of abdominal wall defect in a 1-day old newborn with gastroschisis.

Conclusion: Plastic sutureless closure could be the preferred technique for managing gastroschisis in resource constrained countries.

Key words: Gastroschisis; Plastic sutureless closure; Neonate

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INTRODUCTION

Gastroschisis (incidence of 2-5 cases per 10,000 live-births) is anterior abdominal wall defect occurring usually on the right side of umbilicus, leading to evisceration of abdominal contents.[1,2] The conventional methods used are; primary fascial repair. or staged silo reduction followed by a sutured closure of the abdominal wall. Plastic sutureless closure, as introduced by Sandler et al [3], used a combination of Tegaderm dressing and remnants of umbilical cord to cover the defect. Despite having a similar outcome, the plastic sutureless closure is considerable cost effective.

We report a case of gastroschisis in a neonate managed by the plastic sutureless technique. To the best of our knowledge, this is the only documentation of this technique from Pakistan.

CASE REPORT

A one-day old full term baby girl, born by SVD and weighing 2.4 kilogram, presented with eviscerated bowel loops from abdominal wall. On examination, the stomach, small and large bowels were eviscerated through an abdominal wall defect on right side of umbilical cord (Figure 1). The organs had been covered in cotton wool and were densly adherent to each other. Laboratory work-up was normal, except a blood culture positive for Acinetobacter. Antibiotic therapy with vancomycin, meropenem and colomycin was started along with fluid resuscitation. After rapid optimization, the baby underwent surgery. After cleaning and washing, the eviscerated gut loops were reduced gently into the peritoneal cavity while noting intragastric pressure. Owing to difficulty in reduction, the defect was extended slightly. The defect was then covered by the umbilical cord

cut according to the dimensions of the opening. Tegaderm dressing was then applied over the defect for reinforcement (Figure 2).

Figure 1: Neonate born with gastroschisis bowel before reduction. Stomach and edematous large bowel can be noted with stuck cotton used to clean it at home.

Figure 2: Post-operative picture showing closure of defect, done by primary reduction and tailored umbilical cord filling, covered by Tegaderm dressing.

After surgery, the baby was kept in NICU on ventilator and monitored. Repeat blood culture done post-operatively was negative. She was started on peripheral parenteral nutrition the next day and switched to oral feeding, gradually starting from the 6th post-operative day. The Tegaderm dressing was changed and the wound was washed with normal saline every 72 hours. On 4th post-operative day, purulent fluid started oozing from the wound. Peritoneal fluid was then sent for culture turned positive for Candida Tropicalis and Acinetobacter (Multi Drugs Resistant). The patient was treated with colomycin and fluconazole for the respective organisms. She was discharged on the 10th postoperative day in good condition. On follow up, the child is now 6 months old and doing well (Figure 3). She has developed a small umbilical hernia which is being managed expectantly.

Figure 3: Follow-up picture of the patient with a healed incision and the umbilical cord sloughed off.

DISCUSSION

Gastroschisis is a common abdominal wall defect in the neonates and its management is aimed at returning the eviscerated contents back into the abdominal cavity followed by the closure of the defect. Despite being a manageable condition, it has a high mortality rate with contrasting statistics; 75% to 100% in low middle income countries and <4% in high income countries, establishing the essential role of surgical management in survival.[4]

A number of surgical techniques have been described in literature which include primary closure, staged closure and plastic sutureless closure.[5-7] The plastic sutureless method involves reduction of abdominal viscera into the cavity followed by an umbilical remnant covering reinforced by Tegaderm dressings. This technique is either used as primary or secondary after silo placement, however in our case primary intervention after bowel reduction was undertaken.

A meta-analysis by Miyaki et al, showed plastic closure as a cost effective technique as it decreases ventilator time and hospital stay.[8] Since sutureless closure can also be employed as a bedside technique, it avoids the added cost of operation theatres and general anesthesia. Whereas, staged silo reduction technique required longer ventilatory support and hospital stay. Both the monetary cost and risk of post-operative infection are deemed much lower in the sutureless closure as the procedure involves the use of umbilical cord which is an

autologous tissue. This technique also has less risk of infections[9] Similarly, we were able to wash the wound with normal saline at the time of dressing change which helped cleaning the pus thus treating the infection quickly. Moreover, the cosmetic outcome is quite acceptable due to cicatrization and secondary healing leading to a centrally positioned umbilicus.[3]

In conclusion, plastic sutureless technique is a cost effective treatment modality especially for resource constrained countries. The technique also has added benefits of less chances of infections and short hospital stay.

Consent: Authors declared that they have taken informed written consent, for publication of this report along with clinical photographs/material, from the legal guardian of the patient with an understanding that every effort will be made to conceal the identity of the patient however it cannot be guaranteed.

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