Management of Gastroschisis in a Peripheral Hospital

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Introduction

Gastroschisis is a congenital disorder characterized by extrusion of foetal gut through a defect in the abdominal wall, paramedian to the umbilicus. We report two cases of gastroschisis managed in a peripheral hospital. Both were booked cases but antenatal diagnosis of gastroschisis could not be made in either of them. The aim of reporting these cases is to discuss the significance of antenatal diagnosis and highlight the constraints of management in a peripheral hospital.

Case One

A 3.5 kg female baby was delivered by caesarean section to a 22 years old full term primigravida, indication being meconium stained liquor. The initial APGAR score was 3/10 (meconium aspiration suspected). There was herniation of gut through an approximately four centimeter defect in the anterior abdominal wall, lateral to the umbilicus, on the right side (Fig.1). No other anomaly was detected at birth. After tracheal suctioning and toileting, the newborn was intubated and resuscitated with 100% oxygen for the time till she could sustain spontaneous respiration. After stabilization of her general condition, the eviscerated gut was covered with moist swabs and a sterile urobag. Hydration was maintained with N/5 in 10% dextrose, at 8-10ml/kg/hr. The baby was nursed in the neonatal intensive care unit (NICU). Oxygen was

Fig. 1 : Extrusion of the gut through an abdominal wall defect

administered via a nasal catheter and a nasogastric tube was secured. Broad spectrum antibiotics and H₂ receptor blockers were started. The option of transferring the patient to a tertiary care centre was considered unsafe because of her poor condition and long transit time (>24 hours).

The baby was taken up for surgery under general anaesthesia using vecuronium and pethidine within six hours of birth. Nitrous oxide was avoided to prevent further gut distension. The preoperative fluids were continued and ringer lactate added to replace third space losses. At surgery, the intestines were oedematous, meconium stained but viable. There were no associated atresias or malrotation of gut. A thorough warm saline lavage was given and the extraviscerated contents returned to the abdomen after decompressing the stomach and colon. Skin flap around the defect was raised and only the skin was approximated. Postoperatively, the baby was electively ventilated because of the gut distension and the poor lung condition. In the absence of a neonatal ventilator, she was manually ventilated with approximately 30-40ml tidal volume, at 50-60 breaths/minute via a Jackson Rees circuit attached to an oxygen concentrator. She was febrile with clinical and radiological evidence of meconium aspiration pneumonitis in the right lower zone of chest. The heart rate remained between 160-180/minute and SpO₂ at 90-94%. Blood pressure and arterial blood gases could not be assessed. The baby was managed with antibiotics, hydration, thermoregulation and assisted ventilation for 48 hours till the distension and inflammation of the gut subsided. She was weaned off artificial ventilation on the third postoperative day while oral feeds were started after bowel movement on the seventh postoperative day. She tolerated oral feeds well and lung condition improved gradually. She was discharged two weeks later with body weight of 2.8 kg, followed up for three months thereafter and referred further for management of ventral hernia.

Case Two

A 2.2 kg male baby with gastroschisis was born to a full term primigravida. Within two hours, the baby was taken up for surgery and primary closure of the defect was done. He was managed on similar lines as the first case. In the

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postoperative period he was electively ventilated manually for three days but he succumbed to sepsis on the fourth day.

Discussion

Gastroschisis and omphalocele are the abdominal wall defects with a combined incidence of 1 in 2000 [1]. Gastroschisis is usually an isolated anomaly unlike omphalocele, where the foetal gut and liver remain closed within a membranous sac and there may be associated chromosomal and cardiac anomalies [2]. Gastroschisis is common in premature and low birth weight babies, secondary to in utero growth retardation and is seen in young maternal age and low gravity [3].

Gastroschisis is usually detected in the second trimester using antenatal sonography with 70-72% detection rates. This imaging modality is preferred as it is non invasive, rapid and allows real time foetal examination [4]. Antenatal diagnosis allows in-utero transfer, planned delivery in a specialized unit and early counselling of the parents [5].

Survival rates after surgery are 87-100% [6]. Surgical correction of gastroschisis involves the return of the extraabdominal bowel back into the abdominal cavity followed by abdominal wall closure. This can be an immediate primary repair to avoid infection, fluid and heat loss. However, the extent of intestinal inflammation and dilatation may contraindicate primary repair. Gut necrosis may complicate excessively tight closure by impeding splanchnic blood flow. Poor healing of the abdominal wound may result in a ventral hernia, requiring secondary surgical repair [7]. A staged repair approach is commonly preferred. The exposed bowel is placed in a silastic sheet, called 'silo' which is reduced daily at the bedside until the abdominal contents level with the

skin and finally the skin closure is done.

In the perioperative period, fluid, electrolyte and heat losses should be corrected. Respiratory distress resulting from gut distension requires intubation and assisted ventilation for 48-72 hours postoperatively. Evidence of bowel damage like atresia, necrosis, or severe dilatation or thickening of the bowel indicates poor prognosis. Mortality is mainly attributed to premature delivery, sepsis and bowel infarction.

Management of gastroschisis in a peripheral hospital is challenging however, the outcome is found to be no different in tertiary care centres globally [1].

Conflicts of Interest

None identified

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ARTICLE RETRACTION

The case report by Chauhan A, Gupta AK, Satyanarayan S, Jena J. A Case of Nosocomial Atypical Mycobacterial Infection. *MJAFI* 2007; 63:201-2 has been retracted from Medical Journal Armed Forces India because of duplicate publication of similar article which appeared as "An Unusual Post Operative Wound Infection" in *Indian Journal of Surgery* 2007;69: 71-3 by the principal author.

Editor