

CASE REPORT

Perinatal traumatism with gastroschisis

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*Department of Paediatric Surgery, University Hospital and Faculty of Medicine, Comenius University, Bratislava, Slovakia. bll@fmed.uniba.sk***Abstract**

Authors analyse 11 cases of perinatal traumatism in a group of 110 patients with gastroschisis during a period of 25 years. They point out its causes and consequences.

To minimize perinatal traumatism, it is necessary to conduct suitable prenatal and perinatal management. In spite of preferring Caesarean section there are no differences between vaginal and Caesarean delivery when the delivery is properly managed (Tab. 1, Fig. 3, Ref. 12). Full Text (Free, PDF) www.bmj.sk. Key words: perinatal traumatism, gastroschisis, Caesarean section.

The perinatal traumatism data on neonates as part of analysis of treatment results are published very sporadically.

The eventuality of liver rupture and volvulus are mentioned and some studies refer to perforation or intestine rupture (1).

The liver rupture may occur at partial liver eventration via abdominal wall defect; however the very hepatic prolapse is rare with gastroschisis.

We encountered only two cases of eventration of liver verge and one case of eventration of right liver lobe in our group.

We did not observe any perinatal traumatism in the identified cases.

The volvulus of bowel loops is in majority of studies rated as prenatal and may also be associated with their gangrene (3, 7, 10).

The intestine rupture is more frequently connected with associated evolutionary defects of gastro-intestinal tract predominantly with intestinal atresia.

In the group of our patients we analysed the reasons and consequences of perinatal traumatism with regard to gastroschisis patients.

Material

In period 1981–2005 we treated an aggregate of 110 patients with gastroschisis at the Children's Surgery Clinic. In the course of this 25-year period we observed perinatal traumatism in 11 patients.

We analyzed the causes and consequences of perinatal traumatism in patients who are summarized in table below (Tab. 1).

We encountered the perinatal volvulus in total of 6 patients in the group.

In the case 1 the patient was transferred to our clinic 11 hours after birth. The bowel loops' gangrene occurred as a result of lengthy ischemia, the fact of which was moreover verified by histological examination of his bowel loops. The patient died after excision of small intestine prevalent sections and colon proximal section with the sign of septic state in early post-surgical period. Also in following cases (4, 5) the evolutionary congenital defect was not prenatally diagnosed and the transport from remote workstation affected the irreversible changes. These patients died too. The last deceased patient with perinatal volvulus (9) had small intestine and colon atresia at the same time, and intestinal tract function was not sufficient. He died due to metabolic disruption symptoms at age of 22 months. In another case (7) where a child with serious asphyxia and partial volvulus of bowel loops was involved we detected partial thrombosis of lower vena cava in revision. The vitality of haemorrhagically incarcerated jejunum section has deteriorated and after 48 hours we were forced to excise an 8-cm long sector with gangrenous changes. In the following period the gastro-intestinal tract function did not restore and after abdomen enclosure the child was temporarily treated by ileostostomy. We disclosed a reduced number

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Tab. 1. Overview of hospitalized patients with perinatal traumatism.

Patient	Diagnosis	Operation	Birth	
1 1984	Volvulus perinatalis	primary closure	vaginal	exitus
2 1986	Ruptura reg. duodenojejunalis	primary closure	vaginal	healed
3 1987	Ruptura ventriculi	primary closure	vaginal	healed
4 1990	Volvulus perinatalis, perforatio jejuni, gangrena duodeni, jejuni, ilei	pl.s.Schuster	vaginal	exitus
5 1993	Volvulus perinatalis, strangulatio, memesenterii cum necrosis int. tetui	pl.s.Schuster	vaginal	exitus
6 1993	Perforatio ilei	primary closure	Caesarean	healed
7 1996	Volvulus perinatalis	pl.s.Schuster	Caesarean	healed
8 1998	Ruptura serosae colonis, thrombosis v. cava inf. partialis	primary closure	Caesarean	healed
9 1998	Volvulus perinatalis, atresio jejuni et colonis	primary closure Bishop-coop	Caesarean	exitus (22 m)
10 2000	Ruptura mesocolonis	primary closure	Caesarean	healed
11 2004	Volvulus perinatalis	pl.s.Schuster	Caesarean	healed

of ganglionic cells throughout the entire colon in the course of revision and histological examination of several samples. The complete renovation of intestinal tract did not take place until the age of 7.5 months. In spite of other obstacles in treatment (subileous condition, dyspeptic problems) comprehensive 1-year long treatment was successful and the further development of the child is with no complications (11).

In the last case of perinatal volvulus (11) the indicated haemorrhagic incarceration of bowel loops and short-term strangulation resulted only in slower restoration of peristalsis (Fig. 1).



Fig. 1. Patient with perinatal volvulus. Although short-term strangulation of bowel loops, the regeneration of peristalsis slowed down.



Fig. 2. The damaged sector of colon was excised and surgical process was uncomplicated.



Fig. 3. The deserosed section of bowel did not have a great extent. Total treatment time of patient did not prolong. Bowel loops did not show any sign of repression of fatal peritonitis.

We were addressed with a rare case of perinatal stomach rupture (3) in 1987. The evolutionary congenital defect was also not prenatally diagnosed and the child was delivered vaginally. In the great stomach curvature area on the border line of upper and central third part we identified a longitudinal rupture of 5x2.5 cm dimension.

The wound was partially tamponed under pressure of eviscerated bowel loops and the left-periphery of abdominal wall defect. After the treatment of rupture and abdominal cavity primary closure his condition necessitated 7 days of parenteral nutrition, since the 14th day he was at full peroral feed, and treatment was completed on 19th post-surgical day.

We identified two cases of perinatal small intestine perforation (2, 6), and after primary treatment of injuries, further process of treatment was standard.

These patients did not demonstrate any additional associated evolutionary defects of gastro-intestinal tract. The mesocolon rupture in one case as well as the rupture of colon serosa in another case (8, 10) were caused by Caesarian delivery, they required the excision of damaged section of intestine and post-surgical process was with no complications (Figs 2 and 3).

Fatal effect of prenatal traumatism in some patients was a consequence of improper prenatal a perinatal management, the fact that this congenital evolutionary abnormality had not been diagnosed during pregnancy did not enable the following delivery at obstetric centre to commence adequate intensive surgical treatment. The Perinatal volvulus was the cause of exitus in three cases of our patients group (1, 4, 5). On one occasion (9), it contributed only partially to the fatal prognosis of patient.

Discussion

Perinatal traumatism in patients with gastroschisis directly associated with this congenital evolutionary abnormality is rare. It is more frequently associated with other evolutionary abnormalities of gastro-intestinal tract. From 10 patients with current intestinal atresia, Fleet in three cases refers to perforation or incarceration of proximal colon (4). Kidd also reports on patient with duodenal injury during Caesarean delivery though he disengaged him from the analysis of gastroschisis treatment results together with other fatal associated evolutionary defects (6).

Davies publishes mesenteric trachea rupture at delivery in one case (2).

Baerg specifies intestinal perforation in connection with the delivery of 3 patients (4 %) treated by excision and anastomosis (1). The presence of perforation did not represent a statistically significant factor in relation to fatality.

The mode of delivery with gastroschisis (vaginal versus Caesarean) is to remain controversial also in relation to perinatal traumatism (9). Various authors on the basis of their experience disprove the hypothesis that Caesarean delivery reduces the possibility of perinatal traumatism. In general, many of them consider vaginal delivery to be equivalent in terms of neonatal fatality (10). We have given priority to elective delivery by Caesarean section within the frame of prenatal and perinatal management in our conditions in recent years, Although retrospectively, during the 25-year period there was a prevalence of vaginal deliveries (69 %) compared to Caesarean deliveries (31 %). As a result of analysis also the Caesarean delivery may sporadically bring about cases of perinatal traumatism but proper management can prevent fatal consequences.

Conclusions

Over the past two decades the question of perinatal traumatism at specialized clinics in the direct sequence of sophisticated perinatal and postnatal managements is merely marginal.

If a few isolated cases appear, then they have connection with other associated evolutionary abnormalities of gastro-intestinal tract, and the very trauma does not have significant impact on fatality of patients.

From this point of view it is necessary to consider both of the ways of delivery (vaginal versus Caesarean) as equivalent even though in our group three patients died after spontaneous deliveries in contrast to one death after delivery by Caesarean section.

The single indication of Caesarean operation is becoming a part of the decision of multidisciplinary therapeutic team with a view to consider the actual state of fetus and the hazards of its damage by vaginal delivery.

Under our conditions, following the prenatal diagnosis we prefer to centralize the mothers with fetuses suffering from gastroschisis, interchangeable fetuses aminofusions and planned Caesarean deliveries, the fact of which nevertheless warrants a lower possibility of patients' traumatism (12).

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