OBSTETRICAL TRAUMA - THERAPEUTIC DILEMMAS?

S.G. Aprodu, I. Sârbu
University of Medicine and Pharmacy "Grigore T. Popa" – Iași
Faculty of Medicine
Department of Surgery

OBSTETRICAL TRAUMA - THERAPEUTIC DILEMMAS? (Abstract): Obstetrical trauma is frequent among newborns alive and could represent a cause of perinatal death. The aim of this paper consists of presenting the authors experience regarding the diagnosis and treatment of skeletal and thoracic-abdominal organs related to traumatic birth. Material and methods: Between 2000 and 2010, 33 patients with trauma at birth were included in the study. The type of the lesion and the therapeutical approach and results were analyzed. Results: Two categories of results were clearly differentiated: excellent for obstetric trauma involving limbs and soft parts and negative, disappointing results with 10 deaths in 12 cases treated for obstetric trauma of abdominal organs. Conclusions: Bone and soft tissue birth trauma are relatively easy to identify and treat, but the medical approach of thoraco-abdominal organs birth trauma need clinical experience and technical possibilities. Keywords: OBSTETRICAL TRAUMA, DIAGNOSE, PERINATAL.

Obstetrical trauma occurs with a frequency of 6-8% among newborns alive and totals approximately 2% of all causes of death in the perinatal period (1).

Risk factors for obstetric trauma are known, and depend on the mechanism of birth, fetal organomegaly, the existence of a tumor or malformation, the maternal constitution (2). There have been important advances in the detection of obstetric trauma predisposing situations especially by obstetrical ultrasound (3, 4). The method allowed the identification of risk factors for obstetrical trauma and caused the modification of pregnancy monitoring and childbirth decision. Improved birth assistance techniques, increased frequency of "Caesarean" interventions applicable to the cases with difficult expulsion decreased the number of cases that required the use of forceps.

Unfortunately, there is "spontaneous" birth trauma, in case of mechanical uncomplicated births influencing the natural passage of the fetus or births by "Caesarean" section (5).

The aim of this paper consists of presenting the collective experience of Pediatric Surgery and Orthopedics Department, "Sf. Maria" Emergency Children Hospital of Iasi regarding the diagnosis and treatment of a category of injuries - skeletal and thoracic abdominal organs - related to traumatic birth.

We started from the premise that the diagnosis and treatment of obstetrical lesions is encoded and accessible to the authors. In the cases presented were recorded different types of situations where the application of classical precepts of diagnosis and treat-
ment were not enough, those situations generating discussion on therapeutic strategy but also ethical controversy.

**MATERIAL AND METHODS**

Between 2000 and 2010, were admitted to the Pediatric Surgery Clinic Iasi 182 newborns of which, 33 patients were included in the study. The inclusion criteria were trauma at birth resulted in bone fractures or various obstetrical injuries suspected in the clinical context of laborious birth (skin lesions, chest or abdominal trauma).

The 33 cases had obstetrical trauma:
- **Skeletal**: clavicle fracture 2 cases, femur fracture 5 cases, and humerus fracture 2 cases.
- **Obstetrical brachial plexus palsy**: 6 cases
- **The soft tissue**: skin dilacerations 2 cases, hematoma and ecchymosed 4 cases.
- **Internal organs**: chest-spontaneous pneumothorax in 6 cases, esophageal perforation in one case and abdominal: liver rupture 3 cases and ruptured spleen 2 cases.

Treatment differed according to the character of the lesions. For bone and peripheral nerve lesions, conservative treatment was performed with different ways to immobilize the affected segments according to classical schemes, specific to each type of lesion. For cases with peripheral nerve injury medical rehabilitation was utilized and soft tissue lesions were treated with simple wound care treatment.

The 12 cases of thoracic or abdominal trauma had the following treatment:
- six cases had chest drainage: 5 for pneumothorax and one for esophageal perforation.
- one case of pneumothorax received ventilatory assistance.
- four cases of hemoperitoneum: 2 cases with liver dilacerations and 2 cases of splenic rupture have undergone surgery: laparotomy, hemostasis in cases with liver dilacerations and splenectomy in patients with splenic rupture.
- one case of hemoperitoneum by liver dilacerations received fluids compensation treatment, transfusions and haemostatic treatment.

**RESULTS**

There were two clearly differentiated categories of results: excellent cure for obstetric trauma cases - limbs and soft parts and negative disappointing results with 10 deaths in 12 cases treated for obstetric trauma of abdominal organs.

Two patients with thoracic injuries resulted in pneumothorax (one patient with esophageal perforation and one patient treated with ventilatory assistance) evolved favorably.

**DISCUSSION**

Fetal trauma during birth must be clearly distinguished from fetal trauma produced during pregnancy. Far from being a rarity, diagnosis and treatment of fetal trauma involves saving two lives - the mother and fetus (6). It is recognized that the extent of injury suffered by the mother does not correlate with the degree of fetus damage (7).

The diagnosis of obstetrical trauma is considered simple and does not require sophisticated explorations. In addition, prenatal ultrasound that can detect risk factors for obstetrical trauma occurrence proved extremely useful.

Our experience, revealed by the cases presented here, clearly distinguished two categories of obstetrical trauma: the skele-
tal and soft tissue lesions and the internal organs (spleen, liver). The first group received standard treatment: immobilization, recovery, local care and have very good results with patients healing. The second group received conservative - resuscitation, transfusions - or surgical treatment - laparotomy, surgical hemostasis (8, 9). Disappointing results, 10 deaths recorded in 12 patients with parenchymal organ damage raised the question of choosing the best treatment strategy beneficial to the patient. We believe that clinical experience is to decide when laparotomy is performed in a newborn with haemoperitoneum. Although there is a trend to lower incidence of obstetrical trauma, unexpected maneuvers applied in the attempt of fetus resuscitation by chest compression can cause liver or splenic rupture and hemoperitoneum. Subcapsular ruptured trauma is less severe than liver dilacerations.

Treatment strategy in cases of abdominal parenchymal lesions referred to prompt volume replacement, correction of coagulation deficits and even surgery by laparotomy, blood evacuation from the peritoneal cavity and liver dilaceration suture. Neonatal liver suture is extremely difficult and only the products for haemostasis improvement - TachoComb, Tachosyl - proved effective. We thought that if the patient is hemodynamically balanced, simple clinical surveillance, hematologic and ultrasound is the most practical approach (8).

Another category of obstetrical trauma was the immediately after birth installed pneumothorax, due to a spontaneous esophageal perforation (10) or hyperventilation due to high pressure in infants who required resuscitation. In these cases air leakage collection was evacuated or mechanical ventilation with positive end-expiratory pressure and minimizing the inspiratory pressure peak applied (11).

Skeletal lesions registered at birth as a result of obstetrical trauma generally have good prognosis and complete healing of the lesions was observed (6). Knowing these facts, would prevent dissemination in the media of subjects without medical support! In addition, pediatric neonatologist together with the surgeon are required to distinguish between obstetrical fracture happened in extracting the fetus and postnatal fracture. Practical experience of the authors says that this is difficult and only in case of a fracture injury diagnosis the so publicized "malpractice" could come in discussion.

CONCLUSIONS

The authors report two distinct categories of obstetric trauma: the skeletal and soft tissue and the abdominal and chest. Bone and soft tissue lesions are more common, easily diagnosed and treated only conservatively, healing without sequelae. Parenchymal organ injuries are serious, with a high mortality rate. Treatment strategies are multiple and only clinical experience can determine the best choice. Medical practice must differentiate lesions produced during birth of those produced during fetal life or postnatal.

REFERENCES

Obstetrical trauma - therapeutic dilemmas?


---

**NEWS**

**COMPARATIVE EVALUATION OF SERUM C-REACTIVE PROTEIN LEVELS IN CHRONIC AND AGGRESSIVE PERIODONTITIS PATIENTS AND ASSOCIATION WITH PERIODONTAL DISEASE SEVERITY**

C-reactive protein (CRP) is an acute-phase reactant and has been proved to be a significant predictor of future cardiovascular events. Recent studies have demonstrated a correlation between periodontitis and elevated C-reactive protein levels. Most of the studies have focused on chronic periodontitis and very few studies are done in patients with aggressive periodontitis. The aim of a study realized by a group of Indian researchers was to determine and to compare the relative levels of serum CRP in aggressive and chronic periodontitis patients. A total of 75 systemically healthy subjects were divided into three groups: group I (non-periodontitis subjects); group II (chronic generalized periodontitis patients) and group III (generalized aggressive periodontitis patients). All participants were subjected to quantitative C-reactive protein analysis using enzyme-linked immunosorbent assay. Mean CRP levels were significantly greater in both group II and III as compared to group I and group III having greater level than group II. CRP levels positively correlated with the amount of periodontal destruction as measured by probing depth and clinical attachment loss. The study indicates a positive correlation between C-reactive protein and periodontal disease severity with particular concern in younger individuals that could be a possible underlying pathway in the association between periodontal disease and the observed higher risk for cardiovascular disease in periodontitis patients (Goyal L, Bey A, Gupta ND, Sharma VK. Comparative evaluation of serum C-reactive protein levels in chronic and aggressive periodontitis patients and association with periodontal disease severity. Contemp Clin Dent, 2014 ; 5 (4) : 484-488).

Irina Grădinaru