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Bilateral Congenital Diaphragmatic Hernia

Congenital diaphragmatic hernia (CDH) includes the anterior Morgagni hernia, hiatal hernia and the posterolateral Bochdalek hernia. Most CDH are Bochdalek type (85%). Bilateral CDH is extremely rare occurring in 1% of all CDH cases. Most of them die in utero while 25-35% of them survive. Antenatal diagnosis is possible with ultrasonography showing minimal mediastinal shift, bowel In thorax, small abdominal circumference and polyhydramnios. The prognosis of CDH depends on the degree of pulmonary hypoplasia and pulmonary hypertension caused by the intrinsic intrauterine pressure of the defect on the developing lung of the fetus. Furthermore a higher prevalence of major congenital anomalies (chromosomal and cardiac) has been reported for bilateral when compared with unilateral CDH. A prenatal diagnosis is more frequent among non-survivors compared to survivors due to the challenging nature of establishing the diagnosis of bilaterality. The patient with the largest defect and smaller lungs carries the worst prognosis. Most bilateral CDH usually have an acute presentation, but if the pulmonary impairment is subtle it can have a delayed presentation with an excellent prognosis. The rate of surgical repair of bilateral CDH is 50%. Most of these cases of bilateral CDH are repaired with a subcostal abdominal incision, though there has been scattered reports of staged bilateral thoracoscopic repair. Two-third of repaired cases will need a patch. Larger defect size, needing a patch repair, correlates with a more severe disease and mortality. The mortality of patients with bilateral CDH using ECMO is significantly larger that with unilateral CDH. 60% of the surviving patients are in need of pulmonary support at 30 days of life which would indicate a similar poor long-term prognosis of bilateral CDH patients at one and five years. Lower Apgar scores, prenatal diagnosis, the need for ECMO treatment, and patch repair have shown to be associated with higher mortality.

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Extremity Compartment Syndrome

Acute compartment syndrome is a surgical emergency caused by an increase in the interstitial pressure within a closed muscle compartment of an extremity causing decrease perfusion of muscles and nerves. It can be the result of external compressing or internal expansion forces within an enclosed fascial compartment. Most cases of compartment syndrome are associated with trauma (80%), namely tibial and forearm fractures followed by nontraumatic causes (20%) such as ischemic-reperfusion event after arterial injury, thrombosis, burns, bleeding disorder, infection and blunt injury. The normal pressure in a muscle compartment is less than 12 mm Hg. Swelling of injured muscle raises the intracompartment pressure closing lymphatics vessels and small venules. Early presentation there is perifascicular and intrafascicular edema, hypertension in the capillary bed, and compression of arterioles, all of which worsen the ischemia. Blood flow in the capillary circulation ceases when compartment pressures exceed 35 mm Hg. The sensory nerves are affected first, followed by the motor nerves and muscles, fat and skin become involved later. The skin is the most resistant to ischemia. Untreated compartment syndrome causes irreversible neurologic damage, muscle necrosis, myoglobinuria, renal failure and fibrous contracture (Volkmann). Symptoms include pain, pallor, paresthesia, paralysis and pulselessness. Management consists of urgent decompressive fasciotomy. Measurement of the compartment pressure by needle or using near-infrared spectroscopy showing values higher than 30 mm Hg (or 20 mm Hg below diastolic pressure) should undergo fasciotomy. For upper limbs decompression can be achieved via volar or dorsal approach or both. In the lower extremity four-compartment decompression can be achieved b a single or double incision technique. Decompression of the thigh can be achieved via medial or lateral incision. Complications of fasciotomy include infection, iatrogenic nerve or blood vessel injury and muscle damage. Complications associated with the fasciotomy scar includes paresthesia, pruritus and pain.

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Subcutaneous Abscess in Children

Subcutaneous abscess are fairly common condition encounter in children. The rise in community cases of methicillin resistant staphylococcus Aureus (MRSA) infection has led to a similar rise in number of skin infection and abscess formation requiring surgical drainage.

These MRSA soft tissue infections often present as more complicated forms of subcutaneous abscess usually necessitating wide incision and drainage procedures for appropriate care. Communities have reported a prevalence of MRSA at 66-74% among pediatric patients undergoing surgical intervention. The toddler population with less than three years of age is at greater risk due to lack of formal toilet training and use of diaper that promotes bacterial propagation. Standard management of subcutaneous abscess, especially those measuring more then five centimeters, is incision and drainage followed by packing in the wait of secondary healing. Children are unable to perform their own wound care, and caretakers often struggle with wound packing and dressing changes. Minimal invasive technique has been developed to drain these complicated abscess. Intravenous antibiotics are needed when cellulitis and leukocytosis are present. Instead of large drains such as Penrose, small drains such as vessel loops or rubber bands are used to accomplish the task after manipulation of the loculations of the abscess followed by irrigation with normal saline. Vessel loops are used in patients with known latex allergy by all surgeons. The use of a loop drain is safe and effective in the treatment of subcutaneous abscesses in children. Packing gauze is not always needed. Because of the increasing incidence of community-acquired S Aureus soft tissue infections, sulfamethoxazole/trimethoprim or clindamycin, was used empirically for a total of 10 to 14 days. The content of all abscess is swabbed for culture routine, though this not makes a significant process as the results are usually available when the child is recovering from the abscess satisfactorily.

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