



PEDIATRIC SURGERY Update 8

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Adrenal Incidentaloma

With the advent of potent imaging studies during the eighties a group of adult patients was found with incidentally discovered adrenal masses, hence the term coined of adrenal Incidentaloma. At the time, masses below a size of three centimeters were observed with follow-up studies for spontaneous regression. Most cases resulted in benign non-functioning adenomas which disappeared with time. The situation in children is different. A mass identified in the adrenal gland is cause for concern. In infancy and childhood the most common adrenal mass is the neuroblastoma, a malignant neural crest tumor. Initial diagnosis of an adrenal mass in a child is made with Ultrasound, which is also used to document regression of uncomplicated neonatal adrenal hemorrhage. Further radiological assessment of an adrenal incidentaloma in a child should include CT-Scan and MRI. MRI can accurately distinguish adrenal adenomas from adenocarcinoma, pheochromocytoma and neuroblastomas. Endocrine tests evaluating pituitary-adrenal function (urinary excretion of 17-hydroxycorticosteroids, 17-ketosteroids and catecholamines, plasma concentrations of ACTH, cortisol, DHEAS, androstenedione and testosterone, dexamethasone suppression test and corticotrophin-releasing hormone stimulation test) should be part of the work-up. Should biochemical studies revealed no hormonal related disease (Cushing, hyperaldosteronism, pheochromocytoma, etc.) a histological diagnosis should be obtained by either CT-guided fine needle biopsy or surgical resection. In the event of no diagnosis, adrenal tumor resection should be done.

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Pneumomediastinum

Spontaneous pneumomediastinum is a self-limited condition rarely seen in infants and children. Alveolar rupture secondary to increased pressure (such as effected by barotrauma) or over distension leads to air dissection along perivascular and peribronchial tissues up to the hilum of the mediastinum and the soft tissue of the neck (Macklin effect).

Clinically the child develops dyspnea, sore throat, sudden chest pain radiating to the back or neck, subcutaneous emphysema and Hamman's sign. Rarely, the massive subcutaneous emphysema can cause respiratory compromise requiring emergency releasing incisions. Some of the causes of spontaneous pneumomediastinum include asthma (most common cause), mechanical ventilation, intubation, Valsalva, foreign body, trauma, esophageal perforation and drug inhalation. Diagnosis is established with simple chest films (PA and lateral are needed). Management is conservative (bed rest and analgesics). A few cases need mechanical or high frequency oscillatory ventilation. Most children clinically improve during the next three days with resolution of the pneumomediastinum by seven days.

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Adhesive Bond

Adhesive bond refers to a group of cyanoacrylate tissue glue adhesive used as an alternative for skin wound closure, instead of suture. The most extensive use of adhesive bond is for the repair of simple traumatic skin laceration in the emergency room. Advantages of using adhesive bond include rapid achievement of tissue union, need to use or remove suture is eliminated, application is less painful than suturing, more efficient use of physician time, and cyanoacrylates have a significant antimicrobial effect against gram-positive organisms. Cosmetic appearance is similar to that obtained after suture skin closure. Early wound dehiscence is the most common complication of use of tissue adhesive closure, seen in up to 5% of cases. The adhesive bond is a sterile sealed unit terminally sterilized by gamma radiation. When compared, suturing is cheaper than using the adhesive bond. The use of adhesive bonds is an ideal alternative to conventional suturing for the cutaneous closure of low tension lacerations in children with a long-term cosmetic outcome comparable to conventional suturing. Parent satisfaction is greater with the use of adhesive bond.

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