



# **PEDIATRIC SURGERY *Update* ©**

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### **Pneumatocele**

A pneumatocele is a benign air-containing cyst in the lung most commonly the result of Staphylococcus Aureus pneumonia. Other less common bacteria associated are Hemophilus Influenza, Pseudomonas Aeruginosa and Strep Pneumonia. Pneumatocèles are most commonly seen in young children (almost 50% of cases are less than one-year of age) during the acute phase of the pneumonic process. In a low percentage of cases the pneumatocele can be the result of closed chest trauma. In the infectious pneumonic setting the inflammatory process causes necrosis and liquefaction of the lung parenchyma followed by air leak and subpleural dissection forming a thin-walled cyst. Fever and respiratory distress are the most common symptoms during initial presentation. Diagnosis is established with the help of simple chest-x-ray films. CT-Scan might be needed to differentiate between a congenital lung cyst or cystic adenomatoid malformation. Follow-up films will help determine if the pneumatocele is growing or not in size. Rapidly enlarging pneumatocele may need percutaneous catheter decompression. Surgery is indicated only if the child develops respiratory distress or the pneumatocele ruptures into the pleural space creating a tension pneumothorax, a bronchopulmonary fistula or an empyema. Fortunately most pneumatocèles gradually decrease in size and disappear after the acute pulmonary infection subsides in a period that may range between six weeks and six months.

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### **Robotics**

Computer-assisted surgery (robotics) has several advantages: the increase in three-dimensional accuracy, the reproducibility of repeated procedures, the increased precision of movements enhancing the skills of the surgeon and the unique ability to perform surgery over a distance. Two systems are actually in use today: the Da Vinci and Zeus systems.

In image-guided procedures, robots use magnetic resonance and computed tomography image data to guide instruments to the treatment site. By increasing the image capabilities the surgeon can integrate and define the pathology, margins of resection, and vasculature during surgery. Experimental studies have showed that robotically reproduced laparoscopic maneuvers such as tying, suturing, dissection, clipping, and cautery, seemed to be as accurate and fast as maneuvers made without robotics. Some of the clinical applications of robotics surgery includes laparoscopic cholecystectomy and funduplications, entero-enterostomy, cardiac surgery, port-wine laser ablative surgery, and urologic procedures to mention a few. Image-guided robots can biopsy brain lesions with less damage to adjacent tissue and are routinely used to shape the femur to precisely fit prosthetic hip joint replacements. Robotic systems are also under development for coronary bypass, microsurgical procedures in ophthalmology and surgical training and simulation. Issues of physician acceptance, high costs, performance and safety remain to be addressed.

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## **Fibromyxoid Sarcoma**

Fibromyxoid sarcoma (FS) is a distinctive indolent soft-tissue sarcoma very uncommonly seen in children. Children demonstrate the low grade variety. FS grows slowly and can metastasizes to distant organs, chiefly to the lungs. The tumor has been located in the thigh or inguinal area, in the shoulder, in the axilla-chest wall area, the perineum, the small bowel mesentery, the neck, and the buttocks. Size can vary between 3.5 cm and 25 cm (median 4.5 cm). Histologically the tumor demonstrates contrasting fibrous and myxoid areas, a swirling, whorled growth pattern and bland, deceptively benign-appearing fibroblastic spindle cells; cellularity is low to moderate, mitotic figures are uncommon, and nuclear pleomorphism is usually absent or slight. The rate of local recurrence is very high. Management should consist of aggressive wide local excision if possible since this tumor has been found to be chemotherapy resistant. Adjuvant radiotherapy is an alternative for residual or metastatic tumors.

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