



# **PEDIATRIC SURGERY Update** ©

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### **Retained Appendicolith**

Appendicoliths are formed by calcium phosphate, inorganic salts and fecal debris layered and lodged within the appendix lumen that may cause obstruction, inflammation and perforation of the organ. They are present in up to 30% of children with appendicitis. When an appendicolith is found extraluminally, it is pathognomonic for perforation of the appendix. Rarely an appendicolith may be retained from a perforated appendix or dropped during appendectomy. Retained appendicolith is a delayed complication associated after previous removal of the appendix using the laparoscopic or open surgical technique. Dropped or retained appendicolith has been reported to occur more frequently in the setting of laparoscopic surgery compared to open appendectomy due to failure to recognize and extract the appendicolith during the procedure. Appendicolith retained in the peritoneal cavity after an appendectomy may serve as a nidus of infection and lead to abscess formation days to months after surgery. The median time to presentation of the abscess is 1.5 weeks with a mean of two months, though a few reports demonstrate presentation to occur several years later. Children present most commonly with focal abdominal pain, fever and leukocytosis. The most common finding on contrast-enhanced abdominal CT scans is an abscess with one or more subcentimeter foci of high attenuation adjacent to the cecum or the Morrison pouch. Retained appendicolith has been reported in different sites including the pelvis, gluteal region, hepatorenal pouch (Morrison) and subhepatic region. Every effort must be made to identify and retrieve appendicoliths at the initial appendectomy. In cases of retained appendicoliths the definitive management is surgical removal of the appendicolith as failure to do so may result in recurrent intra-abdominal abscesses, wound infection and occasionally fistula formation. Retrieval of the retained appendicolith can be performed open, laparoscopically and in a few instances percutaneously.

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## Melanonychia

Melanonychia striata or longitudinal refers to deposition of pigment in the nail plate from increased pigment production within the nail matrix. Melanonychia is a benign condition found rarely in children and adults. The deposition can involve a single longitudinal line or all the nail. The nail plate is not normally pigmented, irrespective of race. Melanonychia is mainly due to melanin pigment produced by activating or proliferating melanocytes in the matrix. The problem arises in the differential diagnosis which includes lentigo, subungual nevus, atypical melanocytic hyperplasia or melanoma of the nail matrix in which case a biopsy is in order. Clinical features of melanonychia that increase concern whether this is a melanoma includes pigment bands broader than 3 mm, changing pigmentation or shape, associated nail dystrophy, Hutchinson sign, bands that are not homogenous in color, blurred lateral borders, irregular lines that are not parallel on dermoscopy and rapid evolution. History of such changes is an indication for nail matrix biopsy. Should the biopsy show high melanocyte count, pagetoid spread, presence of nuclear atypia and/or predominance of single units of melanocytes this would then favor the diagnosis of melanoma of the nail matrix. Melanonychia striata does not progress to melanoma, hence the majority of cases of melanonychia can be managed conservatively without needing to remove the nail and affected matrix (nail avulsion or tangential excision). Follow up is needed in cases that are not backed up by biopsy using dermatoscopic discrimination index evaluating changes in color variegation over time. The reluctance of biopsy is the high incidence of developing nail dystrophy as a complication of the procedure.

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## Central Venous Catheter Repair

Central venous catheters (CVC) are essential for providing prolonged enteral nutrition, chemotherapy and medications in critically and chronically ill pediatric patients. In cases of gut failure or absence they are the primordial way to provide nutrition for extended period of time. They create the venue for outpatient management for many ailments in

children. As foreign body inserted into the body they can get infected, thrombosed, dislodge or suffer mechanical complications such as breakage needing frequent change in the life of patients using them as life supporting. Implanted CVC should be avoided in children with neutropenia (absolute neutrophil count less than  $0.5 \times 10^9/L$ ) due to the increase incidence of bloodstream infection. In pediatric patients the rate of breakage of the external portion of the catheter is one per 1000 catheter-days. When breakage occurs the surgeon has the choice of repairing the catheter or replace it depending on surgical risk and patent available veins. Repairs are performed using the kits sold by the manufacturers of most CVC. Repair can be done using glue after cutting the break site and placing a plastic sheath slide over the new union site to splint the repair, or without glue with an extension catheter with adaptor or connector piece lock into place into the original catheter. A break in the CVC that breaches the lumen is expected to compromise its sterility. Repair and retention of that catheter could predispose the patient to a 2-4 fold higher risk of bloodstream infection in the 30 days following repair. Age, underlying diagnosis, immunocompromised state, parenteral nutrition, catheter type or repair type modified the effect of catheter break and repair on the risk of bacteremia and infection. To stir further the controversy, in gut failure children repairing CVC increases line longevity and preserves the use of limited vascular access sites avoiding early transplants due to absent vascular access. Also, in gut failure cases repairing CVC was not associated with an increase rate of line infection.

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