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EMERGENCY TIPS

J.S. Surpure

Persistent Purulent Nasal Discharge

Purulent nasal discharge is a common clinical symptom in children. Wald(1) reviews the differential diagnosis, evaluation and management of this most common problem.

Viral Infection: The most likely diagnosis with acute onset purulent nasal discharge is viral infection. The discharge is usually clear and watery and the condition does not require specific antimicrobial intervention.

Sinusitis: Thick and colored nasal discharge persists for more than ten days. The symptoms include: day time cough, malodorous breath, and fever. In children older than one year, sinus radiographs show either complete opacification or mucosal swelling of at least 4 mm; air fluids levels are rarely seen. In infants, the diagnosis is difficult and radiographs show diffuse opacification.

Streptococcosis: In young children (under 3 years) Group A streptococcus causes a more indolent and less localized illness characterized by low grade fever, purulent nasal discharge and cervical adenopathy. Sore throat is not a common complaint nor is pharyngitis a typical finding. The diagnosis is confirmed by isolation of Group A streptococci from the nasopharynx or throat. *Staph. aureus, Strep. pneumoniae,* nontypical *H. influenzae* and *N. catarrhalis* are often recovered from the noses and throats of asymptomatic children and constitute normal flora of the upper respiratory tract.

Adenoiditis: Another potential cause of purulent nasal discharge; an enlarged adenoid shadow is demonstrated on a lateral neck radiograph. Most children require

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and respond clinically to antimicrobial therapy.

Congenital Syphilis: The nasal discharge begins after the first week and becomes mucopurulent. The nasal mucosal is erythematous and swollen. The other signs include rash, pseudoparalysis and hepatosplenomegaly. A dark field examination of the nasal secretions shows abundant spirochetes.

Pertussis: The early part of the illness (catarrhal phase) is characterized by persistent nasal discharge. Only when the typical cough becomes prominent, the diagnosis is suspected.

Diphtheria: Although rare, localized nasal diphtheria causes mild systemic illness and presents with predominantly nasal symptoms. Suggestive features include prolonged unilateral or bilateral foul smelling serosanguinous nasal discharge which may contain pieces of membrane.

Allergic Rhinitis: It causes sneezing, nasal itching, clear rhinorrhea, lacrimation and pruritus. It is uncommon in infancy but may present by 2 to 3 years of age. The mucosal swelling and sinus ostial obstruction may predispose to bacterial sinusitis.

Immunodeficiency: These children are predisposed to infection easily and cause acute and recurrent sinusitis.

Structural abnormalities: Children with immotile cilia syndrome present with recurrent and persistent infections of the upper and lower respiratory tract.

Foreign Body: A typical child with nasal foreign body presents with unilateral, malodorous, bloody nasal discharge.

Polyps: Although infrequent in normal children, polyps do occur regularly in patients with cystic fibrosis.

In evaluating a patient with purulent nasal discharge, a careful history and physical examination are essential. The history should include onset and duration of nasal discharge, quality, color and odor and precipitating factors. The physical examination should include special attention to tympanic membranes, the eyes, the sinuses, the chest and the thorough nasal examination.

The author emphasizes that purulent nasal discharge is a common presenting symptom associated with upper respiratory tract infection. The most likely diagnosis are uncomplicated viral upper respiratory infections and bacterial sinusitis. Allergy may be an underlying problem specifically in children with sinusitis. Less common considerations are adenoiditis, and other infections caused by *B. pertussis, C. diphtheriae, Treponema pallidum* or intranasal structural problems.

Carbamazepine Toxicity

Since the approval of carbamazepine (CMZ, Tegretol) as an antiepileptic and widespread use of CMZ, intentional and accidental overdoses have become much more common. What are the symptoms of overdoses? Do the symptoms or severity correlate with serum CMZ levels? Spiller *et al.*(2) discuss their experience. A prospective study of consecutive cases of CMZ was conducted. There were 25 exposures in children less than 6 years, 11 exposures in adolescents and 37 exposures in adults. Peak serum levels ranged from 0.3 to 50 mcg/ml. The predominant signs and symptoms with toxic ingestions include altered mental status (coma), respiratory depression and seizures. Using the presence of coma, seizures or respiratory depression as measures of toxicity, there was poor correlation between rising CMZ overdose. Serum levels below 40 mcg/ml did not accurately predict the severity of the toxicity.

Chronic exposure to CMZ did add some protective effect. Anticholinergic effects such as decreased bowel motility and sinus tachycardia were common; however, cardiac conduction defects were rare.

The authors conclude that serum CMZ levels less than 40 mcg/ml are not predictive of toxicity, therefore management decisions should be based on the patients, clinical presentation.

Blunt Renal Trauma

The management of blunt abdominal trauma in the child has changed dramatically, especially pertaining to hepatic and splenic injuries. Renal injuries may also have improved outcome by a conservative approach avoiding the additional stresses of surgery. Bass *et al.*(3) evaluated the usage of intravenous pyelogram in the management of suspected renal injuries. The study included 333 patients. The results of IVP were compared to the eventual need for surgery, the pathology discovered by surgery or additional evaluation, and the results of the initial urinalysis. The majority of patients studied were victims of MVA-pediatrician accidents (245). The age of patients studied ranged from 6 months to 13 years. The urine was examined using Ames Multistix and results were graded from 1+ to 4+. All IVPs were read by a pediatric radiologist.

A majority of requested IVPs showed no evidence of renal injury (72%). Ninety one (27%) renal injuries identified by radiographic study were then further classified into 4 groups ranging from intrarenal contusions (Grade I) to injuries to the vascular pedicle (Grade IV). All patients who sustained major renal injuries requiring surgery demonstrated 4+ hematuria.

The authors emphasize that the reconstruction of a renal pedicle injury was advisible only if there were no associated major injuries, the diagnosis was made promptly with surgery within 8 hours, and the CT scan demonstrated an intact kidney. The contrast studies should be done on those children who have gross microscopic and macroscopic hematuria and for those with loin tenderness or a palpable loin mass. Limiting the usage of IVPs would enhance cost effectiveness in trauma care.

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APNEA, BRADYCARDIA AND PERIODIC BREATHING: ARE THEY ALWAYS PATHOLOGICAL ?

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