Management of Pediatric Abdominal Tuberculosis

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Abdominal tuberculosis comprises 0.3 - 4% of all cases of childhood tuberculosis. The commonest age group that is affected is 9-14 years. Abdominal pain, fever and weight loss are the most frequent findings at presentation. However, there is considerable variability in the clinical presentation and it varies with the disease distribution within the abdomen. The frequency of the involvement of the different abdominal sites reported in studies in children are as follows: lymph nodes (7.7-68%), peritoneal (10.1- 42%), gastrointestinal (14.3-49%) and visceral (2-5%). Pulmonary involvement is seen in upto 25% even in the absence of symptoms and 1/3rd may have history of contact.

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DIAGNOSIS

The diagnosis and treatment of abdominal TB in children can be challenging. Abdominal imaging is an important first-line investigation and helps in guiding further evaluation. It should be remembered that the presence of enlarged mesenteric lymph nodes alone does not mean that the patient has abdominal TB as it is a common, non–specific finding in children. It's important to try and establish bacteriological and / or histopathological confirmation by obtaining appropriate samples (ascitic fluid, endoscopic biopsies, imaging-guided aspiration from lymph nodes, omentum, liver SOL etc, laparoscopic biopsy). Demonstration of acid-fast bacilli, positive cartridge based nucleic acid assay test (CBNAAT) or caseous granulomas on histopathology and unequivocal objective response to ATT are definitive confirmation of the diagnosis of abdominal TB. However, positive yield is present in 23 – 47% cases and one may often have to resort to a therapeutic trial of anti-tubercular therapy (ATT).

MANAGEMENT

Therapy with standard anti-tuberculous drugs is the cornerstone of management of abdominal TB and is given for a duration of 6 months. For a newly diagnosed child with abdominal TB, intensive phase consists of 8 weeks of Isoniazid (15 mg/kg/day), Rifampicin (10mg/kg/day), Pyrazinamide (35 mg/kg/day) and Ethambutol (20 mg/kg/day). This is followed by 16 weeks of three drugs Isoniazid, Rifampicin and Ethambutol as a continuation phase. The continuation phase can be extended for 3-6 months in certain scenarios based on clinical decision.

Fixed drug combinations (FDC) that incorporate multi-drug therapy are preferred due to safe and simplified treatment and to do away with the possibility of missing one or more of the combination drugs. The FDCs consist of four weight bands for adolescents and adults (25 kg to >70 kg) and six weight bands in children (4 to 39 kg). Dispersible tablets are available for children. Anti-tubercular therapy induced hepatotoxicity may occur in ~10% children and it is important to keep it in the back of one's mind when evaluating a child on follow-up. Patients with cirrhosis, who need ATT are a special group and need modification of the regimen as per the severity of the underlying liver disease. Parents should be explained that good compliance to ATT is essential for success.

The role of surgery is limited to management of complications (obstruction, perforation, fistula formation, etc.). Surgery is absolutely indicated when there is intestinal perforation. It constitutes ~15 % of all children who present with perforating peritonitis to a tertiary centre. Partial intestinal obstruction , adhesive peritonitis and entero-cutaneous fistulas are relative indications. In such children it is prudent to first give a trial of ATT as a proportion of children may respond to it alone. In children who do not respond, resection with anastomosis, bypass (entero-enterostomy) and strictureplasty are done with the aim to preserve maximum bowel length.

Endoscopy has both a diagnostic and therapeutic role. Patients with short and fibrous ileal or duodenal strictures are amenable to endoscopic balloon dilation (EBD).

Nutritional support is important. It should be ensured that the patient receives adequate calories and protein enterally. The use of a restricted fat, medium-chain triglyceride-based formula in case of secondary intestinal lymphangiectasis or chylous ascites improves prognosis.

FOLLOW-UP AND OUTCOME

It is recommended that a clinical monthly follow-up should be done.Most children respond well to therapy. Fever usually resolves within one week of commencing ATT. Patients with ascites have improvement within a few weeks of initiating

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treatment in 90 percent of cases. Patients with tuberculous enteritis generally demonstrate clinical improvement within two to four weeks on empiric therapy. Healing of intestinal ulcers can be seen endoscopically as early as the end of the ATT initiation phase. However, strictures, polyps, and hypertrophic lesions may persist despite the use of ATT.

Emergence of multi drug–resistant (MDR) abdominal TB has recently been reported and should be considered in children who do not show an optimal response to ATD.

At the end of treatment an attempt should be made to objectively demonstrate resolution of the abdominal findings by a repeat imaging, especially in patients in whom the diagnosis was not conformed microbiologically / histopathologically. It is recommended that patients should be continued to be followed up for a minimum of two years after completion of treatment.

With a timely diagnosis mortality is rare, however in children in whom the diagnosis is considerably delayed, a mortality of upto 10% has been reported. There is a need of prompt referral in patients with diagnostic dilemma to centres with investigative facilities, so as to avoid repeated course of ATT, complications of wrong diagnosis and increased risk of MDR.

Further Reading:

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3. Sharma MP, Bhatia V. Abdominal tuberculosis. *Indian J Med Res*. 2004 Oct;120(4):305-15