

## Commonly Employed Tropical Surgeries

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Most surgical infections in the tropical regions are associated with parasitic infestations. These infestations and associated complications needing surgical interventions are not so less common to be confined in the tropics only, but have the prevalence in different parts of the world. The following discussion enumerates only the different diagnostic techniques and surgical approaches in these diverse tropical infections that are commonly encountered.

### Roundworm Infection

Eosinophilia is common, stool examination reveals ova, and sputum and bronchoscopic examination may show Charcot-Leyden crystals. Chest X-ray may show exudates in Loeffler's syndrome. Ultrasonography and MRCP may show adult worms. Surgery is necessary for complications those are not managed well conservatively. One is obstruction which has resulted in perforation. At laparotomy, the worms in the terminal ileum are squeezed through the ileocaecal valve for natural passage in stool. Postoperatively hypertonic saline enema may expedite the extrusion of worms. Strictures, gangrenous areas or perforations need resection and anastomosis. If the bowel wall is healthy enterotomy and removal of worm may be done. The site of perforation may be brought out as ileostomy. In cases of perforation, parasites may be found lying freely in the peritoneal cavity. Common bile duct or pancreatic duct obstruction by roundworm may be treated by endoscopic removal or general exploration. A full course of anti-parasitic treatment must follow any such surgeries [1,2].

### Filariasis

Fever with lymphadenitis and lymphedema is common. DEC provocation test for filarial parasites is still used. Secondary infections, chyluria and chylous ascitis may also occur. Tropical pulmonary eosinophilia may occur. In gross deformities arising from elephantiasis of limbs, intermittent pneumatic compression helps, but the process needs to be repeated for a prolonged period. Resulting hydrocele may be treated by excision and eversion of sac with excision of redundant skin. Operations for reducing the size of the swollen limbs are often unsuccessful and hence obsolete [3,4].

### Amoebiasis

Anemia, leucocytosis, raised ESR and CRP are found along with hypoalbuminemia and deranged liver function test. Serological tests like IHA < IF and ELISA are useful. Outpatient rigid sigmoidoscopy can demonstrate flask shaped and collar stud ulcers. Aspiration is carried out when imminent rupture of an abscess is suspected. It also helps in penetration of anti-amoebic drugs. The threshold for aspirating an abscess is lower in the left lobe of liver for its predilection of rupturing in the pericardium. For other complications like rupture in pleural, pericardial or peritoneal cavities, resuscitation, drainage and appropriate lavage are employed. Resuscitation may follow resection of bowel with exteriorization. Then the patients are given vigorous supportive therapy [5].

### Asiatic Cholangiohepatitis

Disease remains dormant for a long period. Non specific manifestations like fever, malaise, anorexia, abdominal discomfort may

be seen. Ultrasonography and ERCP may be useful. In stones of gall bladder and common bile duct, exploration of the involved structures with repeated washouts may be needed. This should be followed by choledochoduodenostomy and Roux loop (access loop) technique [6].

### Hydatid Disease

CT scan is the investigation of choice. Ultrasonography, immunoelectrophoresis, ELISA is also useful. Surgical interventions need to be done in a tertiary care unit with hepatobiliary surgeon, interventional radiologist and expert physician. PAIR technique or puncture, aspiration, injection and respiration is employed. This is done after adequate drug treatment. Other techniques that are employed in hydatid cyst of liver include radical total or partial pericystectomy with omentoplasty or hepatic segmentectomy depending on the clinical picture. During the operation, scolicalid agents like 15-20% hypertonic saline, 75-95% ethanol or 1% (or 10%) povidone iodine are used. Laparoscopic approaches are often tried [5].

### Leprosy

Diagnosis is clinical. Slit skin smear is useful. Surgical treatment is needed in advanced stages of the disease for functional disability of the limbs, cosmetic disfigurement of face and visual problems. These cosmetic processes are undergone under anti-leprosy drug treatment [7].

### Tropical Chronic Pancreatitis

Patients usually have type 1 diabetes. Serum amylase may be elevated. Plain abdominal X-ray may show pancreatic calcification. Ultrasonography, CT scan and ERCP are also used. Surgical treatment is necessary in intractable pain when there are stones in dilated pancreatic ducts. Removal of stones with side-to-side pancreatic ojejunostomy to a Roux loop is the procedure of choice [8].

### Intestinal Tuberculosis

ESR and CRP are raised. Sputum for ZN stain are usually positive. Barium meal follow through demonstrate show strictures. Culture of ascetic fluid along with chest X-ray is also beneficial. In tubercular strictures of small intestine and obstruction, vigorous resuscitation should precede surgical interventions. At laparotomy, minimal life saving procedure is carried like side-to-side ileotransverse anastomosis for a terminal ileal stricture. A one-stage resection and anastomosis

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may be performed. Perforation is treated by thorough resuscitation followed by resection of the affected segment and timely anastomosis [9].

## Typhoid

Widal test is still in vogue for a good diagnosis. *Salmonella typhi* and *Salmonella paratyphi* Antibody determination is the investigation of choice. Vigorous resuscitation with intravenous fluids and antibiotics are often required. Several surgical options are available depending on the general condition of the patient, site of perforation, number of perforations and degree of peritoneal soiling. The alternatives include closure after freshening the edges, wedge resection of ulcer area and closure, resection of bowel with or without anastomosis, ileostomy or colostomy if essential. Other sites of existing or impending perforations must be watched and thorough peritoneal lavage is mandatory. Wound infection and dehiscence are common after these operations and secondary wound closures of abdomen are often employed [10].

## Poliomyelitis

Diagnosis is solely clinical, CSF studies may help. The goals of surgical treatment are to correct significant imbalances and deformities of bones and tissues. The options may include orthoses for static joint instabilities, operations like tendon transfers for dynamic imbalance and arthrodesis for permanent stabilization of a flail joint [9].

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