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When Necrotic Lymphadenopathy Mimics a Pancreatic Head Mass: CT Features of Pediatric Abdominal Tuberculosis

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ABSTRACT

Abdominal tuberculosis remains a significant cause of morbidity in pediatric populations, particularly in endemic regions. Lymph node involvement with central necrosis and associated peritoneal infiltration represent characteristic imaging features.
We report the case of a 7-year-old child undergoing treatment for pulmonary tuberculosis who presented with abdominal pain and fever. Contrast-enhanced computed tomography (CT) of the abdomen and pelvis demonstrated conglomerate necrotic lymphadenopathy in the hepatic hilum, inter-aortocaval region, mesentery, and left renal space. The periportal nodal mass exerted mass effect on the common bile duct and pancreatic head. Associated findings included duodenal and transverse colonic wall edema, moderate ascites with peritoneal thickening, and mild pericardial effusion.
These findings were consistent with extensive abdominal tuberculous lymphadenitis and peritoneal involvement, highlighting the essential role of CT in detecting complications and guiding management.

KEYWORDS
Abdominal tuberculosis, Necrotic lymphadenopathy, Pediatric CT, Case report

MAIN ARTICLE

INTRODUCTION

Tuberculosis (TB) remains a major global health issue, particularly in developing countries. While pulmonary involvement is the most common presentation, extrapulmonary manifestations account for a significant proportion of pediatric cases.

Abdominal tuberculosis may involve lymph nodes, peritoneum, gastrointestinal tract, and solid organs. Among these, necrotic lymphadenopathy is a hallmark imaging feature. Computed tomography (CT) plays a central role in identifying the distribution, extent, and complications of abdominal TB [1].

We report a case of extensive necrotic subdiaphragmatic lymphadenopathy with compressive and inflammatory complications in a 7-year-old child receiving anti-tuberculous therapy.

CLINICAL INFORMATION

A 7-year-old child with recently diagnosed pulmonary tuberculosis, receiving standard anti-tuberculous treatment for three months, presented with persistent abdominal pain and fever evolving over one week.

Physical examination revealed diffuse abdominal tenderness without signs of peritoneal rigidity. Laboratory investigations showed elevated inflammatory markers. Given the clinical deterioration, contrast-enhanced abdominopelvic CT was performed to assess for complications or alternative diagnoses.

IMAGING FINDINGS

Contrast-enhanced CT of the abdomen and pelvis with multiplanar reconstructions demonstrated a conglomerate mass of necrotic lymph nodes at the hepatic hilum. The mass exerted extrinsic compression on the pancreatic head and the common bile duct, with upstream visualization of intrahepatic bile ducts (Figures 1A,1B).

There was marked submucosal edema and inflammatory infiltration of the duodenum and transverse colon, associated with adjacent mesenteric fat stranding (Figures 2A, 2B).

We noted multiple additional mesenteric lymph nodes, the majority demonstrating central low attenuation consistent with necrosis.

The constellation of findings was highly suggestive of extensive abdominal tuberculous lymphadenitis with associated peritoneal and gastrointestinal inflammatory involvement.

DISCUSSION

Abdominal tuberculosis in children most frequently manifests as lymphadenopathy and peritoneal disease. Lymph nodes are typically enlarged, conglomerated, and exhibit central low attenuation due to caseous necrosis, with peripheral rim enhancement after contrast administration.

Periportal lymphadenopathy may cause extrinsic compression of the biliary tree, potentially leading to obstructive features. In our case, compression of the common bile duct was observed without overt biliary dilatation, underscoring the importance of early detection [2,3]

Peritoneal tuberculosis commonly presents with ascites, peritoneal thickening, and mesenteric infiltration. Gastrointestinal wall thickening and submucosal edema, particularly involving the ileocecal region, are classic; however, duodenal and transverse colonic involvement may also occur [4].

The main differential diagnoses include lymphoma, metastatic disease, and other granulomatous infections. However, the presence of necrotic conglomerate lymphadenopathy in a child with known tuberculosis strongly favors tuberculous etiology.

CT remains the modality of choice for evaluating abdominal TB, as it allows precise assessment of nodal distribution, detection of necrosis, evaluation of compressive complications, and identification of associated peritoneal disease [5].

Early recognition of these features is essential to prevent complications such as biliary obstruction, intestinal perforation, or abscess formation.

CONCLUSION

This case illustrates extensive necrotic subdiaphragmatic lymphadenopathy with peritoneal and gastrointestinal involvement in a pediatric patient with active tuberculosis.

Contrast-enhanced CT plays a pivotal role in identifying characteristic features of abdominal tuberculous lymphadenitis, assessing disease extent, and detecting compressive or inflammatory complications.

Prompt recognition of these imaging findings is crucial for optimizing therapeutic management and monitoring disease progression.

FIGURES

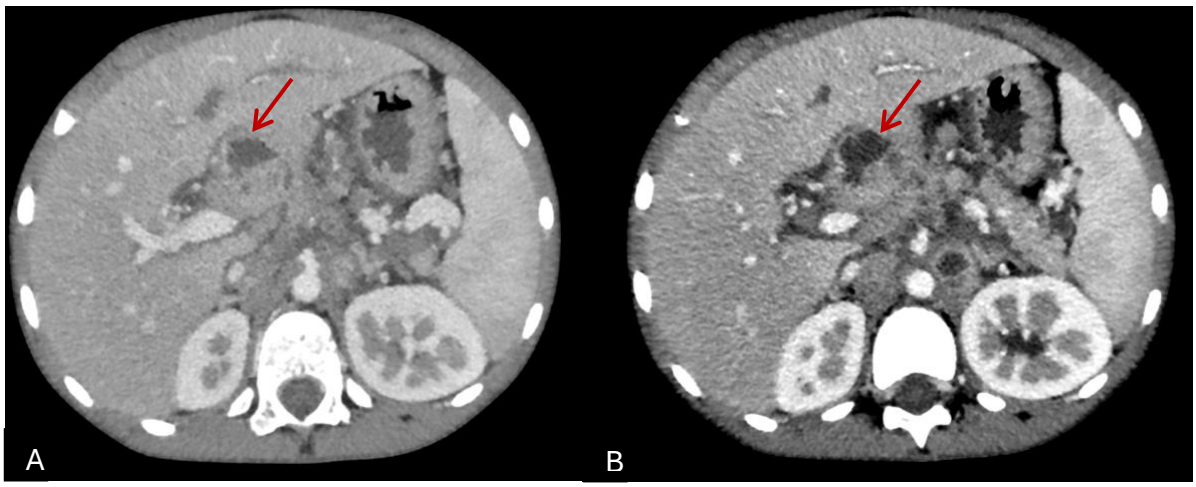

Figure 1: Contrast-enhanced axial CT image showing necrotic conglomerate lymphadenopathy at the hepatic hilum (red arrow), compressing the common bile duct.

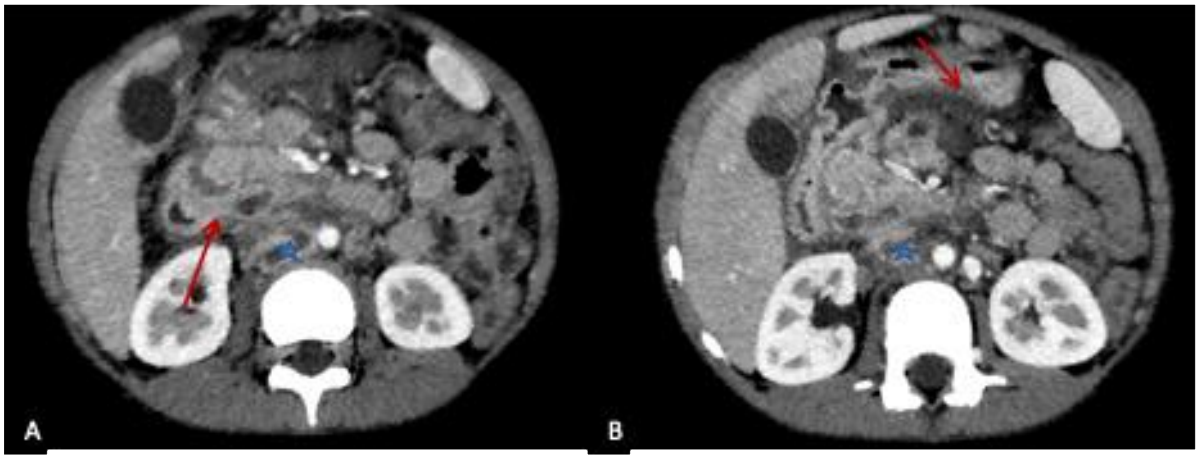

Figure 2: Contrast-enhanced axial CT image showing marked submucosal edema and inflammatory infiltration of the duodenu (red arrow), associated with a necrotic conglomerate lymphadenopathy (blue star) and adjacent mesenteric fat stranding.

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