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Perforation of the GI tract (small intestine) at an abdominal tuberculosis (Tbc) lesion

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INTRODUCTION & AIM

Background: Patients with "acute abdomen" does not represent a rare case in the inter-disciplinary emergency room – every 10th patient complaints on abdominal discomfort.
Due to the potential life-threatening situation, an immediate diagnostic & compatible therapy is inevitable.

As follows, an interesting & not frequently described case is to be illustrated, in whom an acute abdomen due to a mechanic ileus was diagnosed & prompted to surgical intervention in known Tbc w/ intraoperatively found abdominal manifestation.

AIM

Illustration of a rare case constellation in an uncommon intraabdominal Tbc manifestation

... By means of a scientific "Case report"
- based on the representative case description
- the rather (in our region) rare case of a Tbc-caused mechanic ileus (and)

based on:
- selected references from the medical scientific literature (as well as)
- own clinical, case-specific management experiences as obtained,

Medical history-,
Symptomatology-,
Clinical finding-,
Diagnostic- (&)
Therapy- (plus)
Outcome- (as well as)
Follow up-associated aspects

of the concrete case (&)
in general related to the differential diagnosis are to be described.

CASE DESCRIPTION (Medical history-, symptom-, clinical finding-, therapy-, outcome- & follow up-related case-specific aspects)

Medical history:
- *Current*: 27-year old patient (student from Pakistan) with presentation on his own in the interdisciplinary emergency room based on severe abdominal pain (VAS: 8/10), independent intake of the analgetic Novalgin w/o improvement, no stool excretion for 5-6 d, gushing vomiting

- *Own*: Patient has suffered from known intraperitoneal tuberculosis (Tbc) - initial presentation due to convulsive complaints at the middle & upper abdomen for 6 months as well as weight loss of 4 kg, diagnosis-finding with molecularpathological investigation of corpus & antrum biopsies obtained in gastroscopy, ongoing tuberculostatic therapy for 2 months (Isoniazid 100-0-200 mg for 6 months, Rifampicin 600 mg 1-0-0 for 6 months, Pyrazinamid 500 mg, Ethambutol 400-0-500 mg for 2 months)

CASE DESCRIPTION (II)

- **Clinical finding:** Patient – due to pain – in reduced general condition plus hypertonic circulation
Abdomen: ubiquitary muscular defence & peritonitis signs
- **Diagnostic:** - *Laboratory parameters* (SI): Blood gas analysis (venous - pO_2 19.6 mmHg, O_2 saturation 25.3 %; Lactate 3.0 mmol/L), white blood cell count 13.2 Gpt/L; CrP 68.8 mg/L; neutrophil granulocytes 81.9 %

- *CT* (see Fig.): Perihepatic/-intestinal hollow organ perforation at the right upper abdomen (free air, diffuse fluid collection) – mechanic ileus of the small intestine at the right middle abdomen; in addition, fistula & abscess formation, no hint for pulmonary manifestation
- **Diagnosis:** High-grade suspicion of perforation of the jejunum in manifest abdominal Tbc

CASE DESCRIPTION (III)

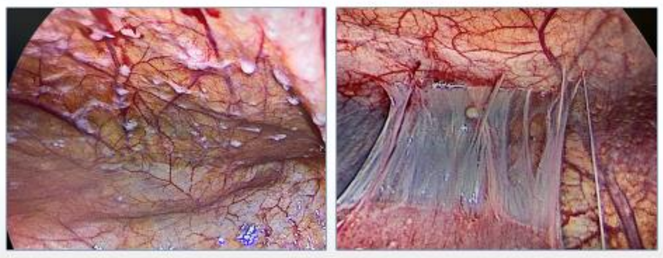
- **Decision-making:** Placement of a gastric tube, asservation of blood samples for microbiological culture, initiation of broad-spectrum anti-biotics w/ Tazobac 3x4.5 g i.v., infusion therapy, emErgency explorative laparoscopy
- **Surgical management:** *Laparoscopy* - Resection of the small intestine (20 cm) at the perforation site w/ side-to-side jejunojejunostomy, partial omentum resection, adhesiolysis of the small intestine & lavage in 2-quadrant-peritonitis, excision of small intestine tumor lesions (several Tbc-typical nodes at the small intestine), 2 drainages (according to the hygiene standard, use of a FFP3 mask) (see fig.)

- **Histology:** Necrotizing granulomatous inflammation in the resection specimen of the small intestine & greater omentum compatible to Tbc infection (subserosal layer of the small intestine)
- **Proceeding:** Gastric tube *in situ* temporarily (due to intestinal atony), continuation of the calculated antibiotic therapy, initiation of oral nutrition, nutritional advisement, further follow-up care for disturbance of wound healing, continuing tuberculostatic therapy (Rifampicin 1x1, Isoniazid 100-0-200 mg)

CASE DESCRIPTION (IVd) Imaging diagnostic

Abdominal CT scan
A) Transversal scan (free air)
B+C) Coronary scan: Ileus w/ caliber jump distinctly enlarged segments of the small intestine

CASE DESCRIPTION (V) Intraop. foto documentation



A) Tbc-typical nodes (granulomas) at the mesenteric tissue of the small intestine

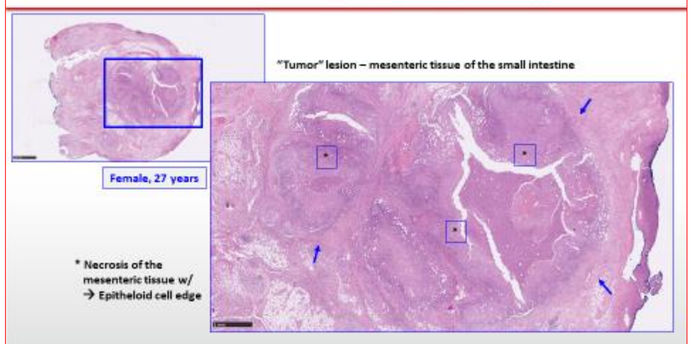
B) Intermesenteric adhesions w/ nodular miniabscess – at the right margin, also Tbc-typical nodes (granulomas – see also panel A)

CASE DESCRIPTION (VIa) Pathology

"TUMOR" lesion – mesenteric tissue of the small intestine

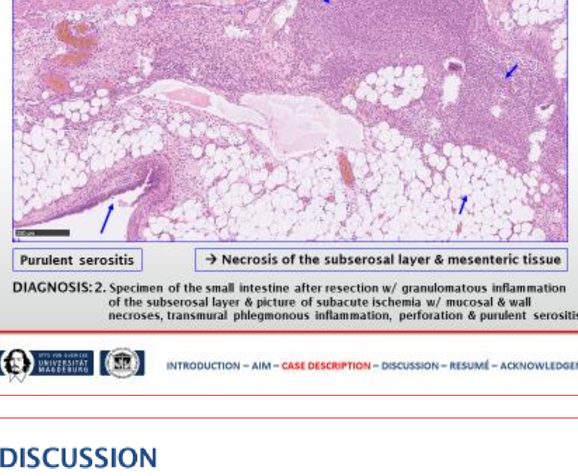
- Inhomogeneous cutting area w/ caseous melting

CASE DESCRIPTION (VIb) Histopathology



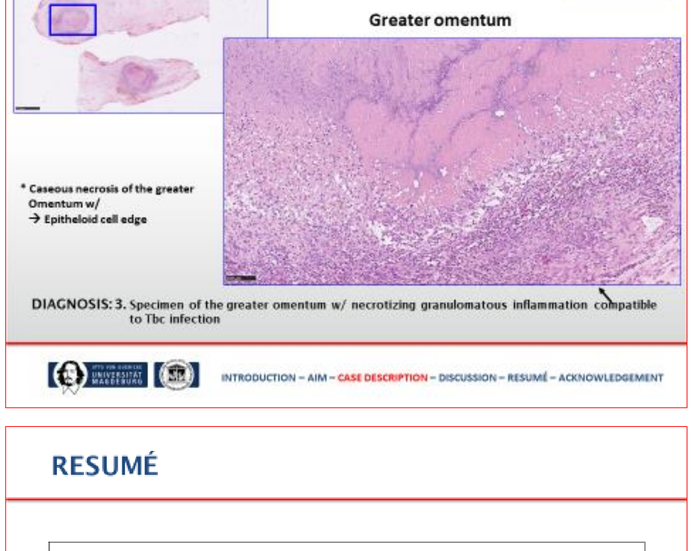
DIAGNOSIS: 1. "Tumor lesion of the small intestine intestine" – mesenteric fatty tissue w/ exzended granulomatous inflammation compatible w/ Tbc infection as well as extended necroses of fatty tissue w/ xanthomatous granulating inflammation

CASE DESCRIPTION (VIc) Histopathology (2)



DIAGNOSIS: 2. Specimen of the small intestine after resection w/ granulomatous inflammation of the subserosal layer & picture of subacute ischemia w/ mucosal & wall necroses, transmural phlegmonous inflammation, perforation & purulent serositis

CASE DESCRIPTION (VId) Histopathology (3)



DIAGNOSIS: 3. Specimen of the greater omentum w/ necrotizing granulomatous inflammation compatible to Tbc infection

CASE DESCRIPTION (VIe) Pathology

Molecularpathological investigation:
FFPE material obtained from corpus & antrum biopsies

Mycobakterien Gruppe 1	++
Mycobakterien Gruppe 2	-
Mycobakterien Gruppe 3	+
M. tuberculosis complex 1	-
M. tuberculosis complex 2	+
M. avium complex 1	++
M. avium complex 2	++
M. kansasii 1	-
M. kansasii 2	-
M. xenopi	-
M. abscessus	-
M. gordonae	-
M. peregrinum	-
M. szulgai	-
M. haemophilum	-
M. marinum/ulcerans	-
M. simiae	-
M. smegmatis	-

Concluding assessment:
Positive for *Mycobakterium avium*
(weak signal for *Mycobakterium tuvercolosis*)

DISCUSSION

- Due to extending migration, probability of Tbc manifestations increases, which can be found at diverse sites.
- Thus, pre-existing Tbc infection can manifest in each organ & as complication or accompanying phenomenon.
- There was a complication of abdominal Tbc, which required emergency surgical intervention despite high potential for complications due to ongoing tuberculostatic therapy & further Tbc manifestations intraabdominally plus – simultaneously – providing adequate safety measures for nurses & physicians of the surgical & anesthesiological personal.

RESUMÉ

The decripted case illustrates impressively the varying occurrence of rare intraabdominal Tbc manifestation, which occurs rarely in middle Europe, caused a mechanic ileus & prompted to an emergency surgical intervention.

- Suspicious acute abdomen requires clarification of the diagnosis &, in case of its confirmation, surgical intervention in etiopatho-genetically justified surgical indication despite complicating additional factors.

ACKNOWLEDGEMENT

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