An Unusual Case of Calcified Post-Primary Reactivated Tuberculosis Granulomas Presenting as Acute Abdomen

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Citation

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Abstract

Calcification in tuberculosis (TB) granulomas is a well-known phenomenon in the natural healing course of TB. Post-primary reactivation affecting the gastrointestinal tract is also common. However, total extra-mucosal spread of the disease presenting with acute abdomen is very unusual and rare. We would like to report such an unusual case at our institute.

CASE HISTORY

A 24-year-old Hindu housewife, residing in Mumbai, presented with complaints of pain in the lower abdomen, vomiting on & off and low-grade fever for three days. There was no history of any trauma. She gave a history of pain that started around the umbilicus, dull aching in nature, for 3 weeks. It later spread to her entire abdomen, which was associated with mild abdominal distension. She also passed sticky stools for few days but with normal urinary habits.

She gave a past history of pulmonary TB 20 years back during childhood for which she completed the course of anti-TB treatment (AKT) for six months at that time. There was no recent history of cough or weight loss. Her menstrual cycle was regular, 4-5 days/28 days, with moderate flow and no pain. Her LMP was on the 22nd of the last month. She was married for eight years with primary infertility.

On physical examination, her vital parameters were stable. She was averagely built and averagely nourished. She had low-grade fever; tachycardia of 96 beats/min. and her BP was 110/70mmHg. Systemic examination was within normal limits (WNL). On per rectal examination there was tenderness in the pouch of Douglas (POD).

On emergency investigation, her total WBC count was 15500/cumm with the rest of the biochemical parameters WNL. Ultrasonography of abdomen and pelvis showed a highly thickened appendix (~5 cm) with free fluid in the POD. A possibility of pelvic inflammatory disease in primary infertility was ruled out after gynecology evaluation. A diagnosis of acute appendicitis was made and an emergency exploration was decided. She was opened through right lower paramedian incision under spinal anesthesia.

The following findings were noted. 1) purulent free fluid (~150 cc) was present in the right iliac fossa; 2) an ~7 cm long, turgid, highly inflamed appendix was located in the post-ileal position; 3) the appendix was perforated one cm above its base with an adjacent hard nodule in the mesoappendix; 4) multiple adhesions within the peritoneal cavity; 5) the ileocecal junction was WNL; 6) multiple white hard nodules varying in size, attached to the serosal aspect of the entire colon and proximally extending to the jejunum, totally extra-mucosal; 7) the rest of the viscera was WNL; 8) uterus and adnexae were atrophied but without any nodules.

She underwent appendectomy and excision biopsy of the hard nodule was sent for histopathology.

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Figure 1

Figure 1: At exploration, multiple white calcified granulomas were seen on the mesentery and on the serosal aspect of the small intestine.



Figure 2

Figure 2: Appendix perforated near the base with adjacent hard nodule.



Gross pathology: 1) a stony hard, white coloured, lobulated, well-circumscribed mass measuring 2.5cm in diameter. The cut section was whitish. 2) The specimen of the appendix was measuring 7cm in length. The cut surface was congested with a perforation of 1cm just above its base. A adjacent lymph node (0.8 cm) was also noted, whitish in color and with hard consistency.

On microscopy, the cut section of the stony hard nodule showed only calcification. The appendix showed acute

suppurative appendicitis with perforative peritonitis. The lymph node in the wall of the appendix showed a hyalinised, post-primary, calcified TB granuloma and a recent active focus was seen along with fibrosis, capsulation and giant cells giving an appearance of burnt-out granuloma at the periphery.

Figure 3

Figure 3: The section from the loose body showed multiple hyalinised & calcified nodules.



A chest TB specialist review was taken to consider restarting AKT, but was denied in view of the early status of its completion. However, considering reactivation of TB, a decision to give AKT was taken. The patient was started on AKT, to which she responded very well. Now, at 3-year follow-up, she is totally healthy and asymptomatic.

DISCUSSION

TB is very common in India. It has its spectrum of presentations: In primary stages, it only affects lungs or lymph glands and at other times it presents in a very late stage of healing. Healing – the pre-requisite to this is halt in further multiplication of the bacilli in the focus. In fibrosis, collagen fibers appear at the periphery of the tubercle and are formed on the basis of reticulin fibers existing in that region. The number of macrophages becomes smaller and smaller. In the end, either the whole focus is replaced by a hyalinised fibrous scar or it merely is encapsulated in fibrous tissue. In calcification, a caseous focus with or without fibrosis can undergo a process of dystrophic calcification. A fibrous capsule surrounds the calcified focus. Fibrosis of the focus takes weeks, while calcification is a process of months or years, depending on the patient's immunity. Healing by these changes does not imply ceased TB activity, as TB bacilli may be "buried alive". Calcification is not a safeguard against reactivation of the focus in the future, because demand of calcium may occur with deficient nutrition or during pregnancy causing decalcification and thus "unmasking" the "protection". Post-primary TB implies lesions of either reinfection or reactivation. In our country, these lesions are mainly found in elder children or adults. The important factor in this behavior is increase in native resistance due to age of the patient. The mechanism that keeps dormant bacilli in check is not clear, as are the reasons why they become reactivated.

Reactivation probably represents some breakdown in immunity and is believed to be a much more common pathogenic mechanism for establishment of adult TB than simple re-infection. CT scan serves as a useful tool to identify this entity but pre-operative suspicion of it is uncommon. Severe calcifications in peritoneum and mesentry have rarely been observed in hyperparathyroidism. Again, simple peritoneal calcifications are not that uncommon but they do not present with acute abdomen.

Our case showed such a reactivated focus within calcified granulomas adjacent to appendicular perforation and presented as acute abdomen and thus warranted short course AKT.

SUMMARY

Isolated calcified TB granulomas do not need an AKT regimen as per review of literature. However, if, at histopathology, granulomas show any recent reactivation, such patients need re-administration of AKT as seen in our patient. The prognosis of such a patient is excellent, provided patient maintains good nutritional status and one has ruled out any underlying immunocompromised status (diabetes mellitus, HIV infection, etc.) of the patient.

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