We present a case of a peri-anal abscess infected by actinomycosis in a 57-year-old male who initially suffered from mild anal pain. There was no fever, body weight loss, night sweats or abnormal findings in laboratory tests. There was also no peri-anal discharge. Our diagnosis at that time was inconclusive. A PET scan was then requested. It successfully detected a left peri-anal lesion, but the initial impression based on the dual phases study, was more in favor of malignancy. An MRI study was then performed, which revealed a cystic lesion posterior to the rectum, with a sinus tract leading towards peri-anal skin but without associated soft tissue mass. The patient returned and reported a dark-reddish discharge from his peri-anus about six weeks later. The pathologist finally confirmed it as actinomycosis.

We concluded that MRI imaging was very advantageous in pre-surgical diagnosis of the peri-anal abscess. The pathologist finally confirmed it as actinomycosis.

Key words: Abscess; Actinomycosis; Anus; pelvic organ, MR
phases study, the initial impression based on PET result was more in favor of malignancy.

Magnetic Resonance Imaging (MRI) was then performed in a 1.5 T system (Sigma, GE medical system, Milwaukee, Wisconsin), with use of phase array body coil. It showed an irregular elongated subcutaneous mass exhibiting low T1W and high T2W signal intensity in the medial-posterior aspect of right buttock (Fig 2, Fig 3). The mass extended from the mid-rectum to the peri-anus along the peri-rectal region. The study showed fluid content structure and a typical morphology of sinus tract formation. We concluded that it was a peri-anal fistula. Six weeks later, shortly after the initial appearance of peri-anal sinus accompanying dark reddish discharge, the patient was received surgical incision and drainage [4] of the perianal abscess. There was a small soft tissue mass with necrosis and discharge locate at right aspect of peri-anus region. Debridgement and curettage were also performed. The final diagnosis base on both image and surgical findings was recto-peri-anal fistula with abscess formation. The patient was uneventful after surgery and during the subsequent OPD follow up period. Histology revealed marked acute and chronic inflammatory cell infiltration with many ‘sulfur granules’ [4], which are characteristic for ‘Actinomyces’.

**Figure 1.** PET scan of whole body image a. AP view and b. lateral view obtained at 45 minutes after FDG injection demonstrate a linear uptake (straight arrow) of isotope in the region of the lower pelvic region.

**Figure 2.** Axial T1-weighted MR image (TR/TE=533/8) depict an irregular elongated subcutaneous mass (curve arrow) and the fistula formation (straight arrow).

**Figure 3.** MR imaging depict an irregular elongated subcutaneous mass: a. high in T2-weighted spin echo (TR/TE = 4150/121) with axial view, and b. sagittal view. The mass (curve arrow) occupied the area from the mid-rectum to the peri-anus along the peri-rectal region. There is fistula formation (straight arrow) extending towards subcutaneous skin of the buttock.
DISCUSSION

Anorectal abscess results from bacterial invasion of the peri-rectal spaces. Superficial abscesses can be very painful with swelling, redness, and tenderness. Deeper abscess may cause toxic symptoms, but localized pain may be less severe [2].

Infection of anal region does not often develop as ‘fistula-in-ano’. The abscess may remain localized, but it may lead a tract to the skin or rectum [5]. Fever and malaise usually result from anal abscess, as well as painful discharge. The most common etiologies of anal abscesses include: Escherichia coli, Proteus vulgaris, Streptococci, Staphylococci and Bacteroides [4]. Actinomycosis israelii as a cause of rectal abscess is rare[6]. An accurate incidence has not been reported in the past decade of published articles. Professor Roland Cope suggested that actinomycosis is rare in the colon and rectum [2].

Actinomycosis israelii is a gram positive, non-sporing, and anaerobic branching bacteria [7]. The diagnosis is difficult because it runs a chronic indolent course. It may present with [4] or without purulent and small yellowish particles. Anorectal actinomycosis has also been reported with clinical presentations mimicking carcinomatosis [2]. A non-surgical confirmation is only possible when purulent material or small yellow particles be observed.

In our case, the patient initially suffered from regional pain due to the deep seated peri-anal abscess before a complete fistula formation developed towards his peri-anal skin. Since no purulent discharge could be collected, a correct clinical diagnosis was very difficult to be made.

In our opinion, MRI study is superior to both physical examinations and colonoscopy in detecting anal abscess when it is deeply located. It helps to detect a sinus tract arising from an underlying abscess. In addition, MRI study is also superior to PET because of its low cost medical expenditure [8], convenience [9] and better resolution [10]. However, the MRI image of peri-anal abscess with fistula-in-ano due to actinomycosis is non-specific. In our case, we reached our diagnosis based on the characteristic fluid content structure and a typical sinus tract morphology. However, further differential diagnoses that include the other possible bacterial infections are still necessary to be considered. In addition, the collected dark-reddish fluid discharge had no visible purulent material, which is also not typical for actinomycosis. In this case, the accurate diagnosis could only be made by pathological examination.

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放射菌肛門周圍膿瘍在磁振造影的表現

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我們報告一名五十七歲男性患有放射菌感染之肛門周圍膿瘍，患者起初只有輕微肛門疼痛，由於沒有發現肛部膿水或分泌物之產生，臨床醫師因此無法在早期診斷。核子醫學這時候成功發現病徵處，卻未能排除惡性腫瘤之可能性。磁振造影檢查顯示肛門下腫塊，從其延伸出條狀癢管，朝向肛門旁皮膚發展，綜合其他發現，磁振造影診斷是良性發炎病變。最後，病理學證實為放射菌感染導致肛門周圍膿瘍。我們認為在手術前的早期肛門周圍膿瘍之診斷，核磁造影具有極高的優越性。

關鍵詞：膿瘍；放射菌；肛門；磁振造影