An Initial Presentation of Flank Pain Caused by Thoracic Disc Herniation

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Symptomatic thoracic disc herniation is less common than herniation in the cervical or lumbosacral regions, and has no characteristic or obvious neurological disability at first presentation. This increases the difficulty of an early diagnosis. Patients often experience an extensive workup and/or invasive procedures targeting other disorders before diagnosis. We present a case involving a 48-year-old male who came to our emergency room with a chief complaint of flank pain. Thoracic disc herniation was finally diagnosed in less than one day after an abdominal computed tomography scan at our emergency room due to highly alertness of our emergency doctor. The patient recovered after discectomy with miniopen transforaminal lumbar interbody fusion. No more flank pain has occurred postoperatively.

Key words: thoracic disc herniation, flank pain, miniopen transforaminal lumbar interbody fusion

Introduction

Herniation of an intervertebral disc of the thoracic spine is relatively rare compared to a similar event in the cervical or lumbosacral region and only account for 0.25% to 0.75% of all symptomatic herniated discs. Unlike cervical or lumbar disc herniation, thoracic disc herniation (TDH) has no typical characteristics and even no obvious neurological disabilities at first presentation. In this article, we describe an adult man who complained of flank pain and was eventually diagnosed with TDH at our emergency room (ER) in less than 24 hour.

Case Report

A 48-year-old man visited our ER with his chief complaint being severe left flank pain for four days. The pain had undergone a sudden onset, consisted of sharp sensations, was persistent and radiated to left groin area. The visual analogue scale pain score was ten. The pain became worse with movement, especially when getting up and turning his body. Resting did not relieve his pain. Only anterior bending could slightly decrease the discomfort. The pain was associated with cold sweating and sometimes scrotum tenderness. An earlier attack with similar episode had happened one month prior to admission while he was in China. His occupation was that of head of a mechanical factory, and he had been traveling a lot between Taiwan and China. During the earlier episode, after resting and analgesic administration for several days, the tenderness had subsided, but flank pain had progressed despite local treatment in

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China. Thus, he had returned to Taiwan and visited our ER. In addition to the above, falling down one week earlier was mentioned. Tracing his past history, he had received extracorporeal shock wave lithotripsy for a right renal stone. At our ER, the patient’s body temperature was 36.6°C, his pulse rate was 70/min, his respiratory rate was 18/min, and his blood pressure was 151/101 mmHg. The back was straight without deformity and the range of motion was not limited. The straight leg raising test and Patrick test were negative. Exogenital examination showed no redness, swelling, discharge, tenderness or mass. Neurological examinations, including muscle power, sensory sensation, and deep tendon reflex, were all within normal limits. The laboratory testing revealed a white blood cell count of 7920 /mm$^3$ (67.6% segmented neutrophil, 27.0% lymphocytes and 3.3% monocytes), hemoglobin of 16.4 g/dL and a platelet count of 248,000 /mm$^3$; furthermore, the biochemistry results were all within the normal range. Kidney, Ureter, Bladder (KUB) x-rays and routine urine analysis were negative. Renal sonography also showed no apparent hydronephrosis.

During observation at the ER, Ketorolac (30 mg) and Tramadol (100 mg) were administered, but symptoms were only relieved slightly. Abdominal computed tomography (CT) was performed due to the unusual flank pain and a high suspicion of herniated intervertebral disc disease between T12 and L1 was the result (Fig. 1). A neurosurgical doctor was consulted and thoracic-lumbar spine magnetic resonance imaging (MRI) was arranged to provide a definite diagnosis (Fig. 2). Under the impression of herniated intervertebral disc of the T12-L1 region with left L1 radiculopathy, the patient was admitted and received discectomy with miniopen transforaminal lumbar interbody fusion. An extruded disc with compression of the left L1 root was found intraoperatively (Fig. 3). The patient had an uneventful postoperative course and now has a symptom-free life.

**Discussion**

Although the incidence of symptomatic TDH is around one per million per year\(^1\), asymptomatic TDH accounts for 37% of herniations.
Fig. 2  T2 weight image of the sagittal MRI demonstrating findings consistent with T12-L1 disc herniation

Fig. 3  The extruded disc was removed during the operation
in the general population by magnetic resonance imaging scanning\(^4\). However, in comparison with herniations of lumbar or cervical intervertebral discs, symptomatic TDH is comparatively rare; this is because the adjacent structure of the thoracic spine provides relatively good stability\(^5\). Nevertheless, the pathogenesis of TDH is not well defined. According to the literature, it may be multifactorial and linked to trauma\(^6\), Scheuermann’s disease\(^7\), degenerative back\(^5\) and genetic factors\(^8\). In addition, sportsmen such as golfers and soccer players are reported to suffer from TDH\(^2,9\). In these circumstances, the earlier fall and an occupation involving long term weight bearing may be considered as aggravated factors in this patient.

Pain is the most common complaint, and occurs in about 57\% of patients with TDH\(^1\). This is followed by sensory disturbances, motor involvement and even severe complication such as paraplegia\(^10\). The presentation of TDH is nonspecific and there is a relative paucity of examination findings on TDH; therefore diagnosis of this disease is a challenge to emergency doctors. To the best of our knowledge, the complete list initial symptom that have been reported as associated with TDH are chest pain, flank pain, abdominal pain, pelvic pain that may mimic cardiopulmonary, gastrointestinal or genitourinary disorders and psychiatric disease\(^2-3,11-15\). These facts can lead to a delay in diagnosis, which can result in progressive neurological impairment and even permanent neurological sequelae\(^10\). It has often taken up to six months from the time of first onset to a definitively confirmed diagnosis in many cases of symptomatic TDH\(^1\). In the present case, we pinpointed the disease by the CT scan less than one day after arrival at the ER because of the high alertness of our emergency doctor. Thus, the emergency doctor or the first line general physician needs to play an important role in the diagnosis of this type of ambiguous neurological pattern because prompt recognition and early treatment are the only key point to preventing critical complications.

References

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胸椎椎間盤突出以腰痛為初次的表現

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有症状的胸椎椎間盤突出相對於腰椎及頸椎少，胸椎椎間盤突出之症状極不明显，不僅初診時沒有典型的特徵，甚至沒有明顯的神經學缺陷。因此增加了早期診斷的困難，病人常接受了不必要甚至侵襲性的檢查。本文報告一位48歲的男性因為腰痛而掛號急診。由於急診醫師的高度警覺，在一天內，藉由腹部電腦斷層診斷發現胸椎椎間盤突出。此位病人接受微創手術及經椎間孔腰椎體內融合術後康復並且不再腰痛。

關鍵詞：胸椎椎間盤突出，腰痛，微創經椎間孔腰椎體內融合術