Volume: 27, Issue:2, April 2016 pp: 107-110 CASE REPORT / OLGU SUNUMU

# THORACOLUMBAR SPINAL FRACTURE MISDIAGNOSED IN CHILDHOOD: A CASE REPORT

## *ÇOCUKLARDA GÖZDEN KAÇIRILAN TORAKOLOMBER OMURGA KIRIĞI: OLGU SUNUMU*

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**SUMMARY:**

Spinal fractures in childhood therefore differ from such fractures seen adults with respect to their location, and the consequences that they can cause on spinal growth[9]. Ogden et al[10], published that the most seen scenario is the multi-leveled vertebral compression resulting "Plastic fracture of the spine"[4] leading to a delay in the diagnosis of thoracolumbar spine fractures. In this study, 4 years old child patient with progresive severe back pain continuied two weeks after trauma determined a L-4 spine fracture neglected due to the traffic accident in MRI was presented. As a result, if thes back pain is contiuned after trauma like our patient, the spinal fracture must be thought and made the MRI.

**Key words:** Spinal fracture of children, pediatric spinal trauma, treatment.

**Level of evidence:** Case report, Level IV.

**ÖZET:**

Torakolomber omurga kırıkları çocuklarda ender görülür. Klinik muayene yanıltıcı olabilir. Ayrıca çocukların vertebra kıkırdak yapısı tam olarak olgunlaşmadığından zayıf alanlar içerir ve kırıklar sıklıkla direk grafilerde görülmez. Çoğu çocuk omurga kırıkları gözden kaçabilir veya tanı gecikebilir. Klinik ve nörolojik muayeneden sonra kırık şüphesi var ise MRG veya BT mutlaka istenmelidir. Bu çalışmada, maalesef 15 gün sonra geçmeyen ağrıları nedeniyle yeniden tetkik edilerek MR ile tanı konulan ve araç içi kaza sonrası L-4 vertabra kırığı saptanan 4 yaşındaki çocuk hastayı sunacağız. Genel beden travması sonrası sırt ve bel ağrısı olan hastalarda, radyoloji negatif olsa bile burada sunulan olguda olduğu gibi çocuğun ağrıları devam ediyor ise mutlaka MR inceleme ile omurga kırığı olup olmadığı teyid edilmelidir.

**Anahtar Kelimeler:** Çocuk omurga kırıkları, pediatrik omurga travmaları, tedavi.

**Kanıt Düzeyi:** Olgu sunumu, Düzey IV

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**Received:** 14th December, 2015.
**Accepted:** 4th March, 2016.

## INTRODUCTION:

Thoracolumbar spinal fractures are usually rare in children as its prevalence in related published data shows a variety of figures. Hubbard et al[5] reported that it is observed in less than 1% of all skeletal injuries where itincreases up to 3% according to Behrooz et al[1]. Regarding these differencial data one can say that no common criteria exists for defining thoracolumbar fractures in children. The clinical examination could be misleading due to the fact that the cartilaginous structures of the vertebrae are relatively week and their fractures are often omitted on routine X-rays[7]. The specific physiological and anatomical features of the spine in children should be taken into consideration as the posterior joint surfaces are more horizontal than adults, which increases the risk of antero-posterior displacements in[10] .The nucleus pulposus is more hydrated in children than adults[8] and absorbs shocks more in early ages.

Spinal fractures in childhood therefore differ from such fractures seen adults with respect to their location, and the consequences that they can cause on spinal growth[9]. Ogden et al[10], published that the most seen scenario is the multi-leveled vertebral compression resulting "Plastic fracture of the spine"[4] leading to a delay in the diagnosis of thoracolumbar spinefractures. Our patient (4 years old) had L-4 spine fracture due to the traffic accident and has admitted to the hospital with thoracolumbar pain.

## CASE REPORT:

After having a car accident the 4 year old boy has been hospitalized due to lomber pain. The history from the family has been elaborated as he had fallen from the seat with the impact of the crush. The X-rays taken in emergency service revealed no sign of vertebral fracture. In the following 15 days the patient experienced progressive severe back pain and has applied to our clinic. During palpation there was a pain in thoracolumbal vertabra but no sign of neurological defect in clinical examination. After the evaluation of the x-ray graphics of the patient MRI showed accute L-4 fracture. The patient was treated with a TLSO (A thoracolumbosacral orthosis) brace for 1 month following that radiologic examinations appeared to be quite normal. The patient had no pain and no limitation of lumbar movement.

After 3 years the incident the patient has been examined for routine control where dynamic and standart X-ray showed full recovery and no signs of old fracture (Figure-1).

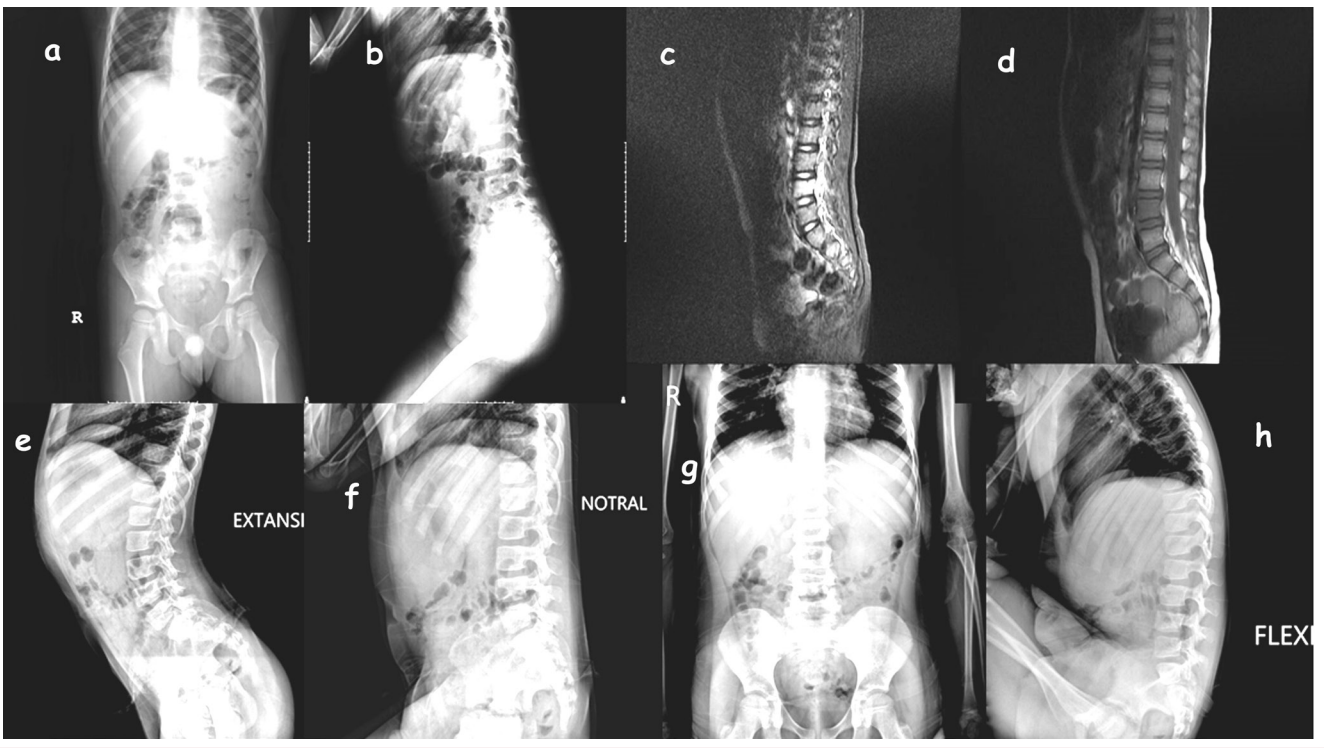


**Figure-1. a)** First AP and **b)** lateral x-rays taken in ER. Signs of fracture were not determined. **c-d)** In the MRI (STIR) of the patients L-4 fracture was shown. **e)** Post-treatment AP and **f)** lateral, **g)** extension and **h)** flexion x-rays in 3rd years control visit after trauma.

## DISCUSSION:

Thoracolumbal spinal fractures without any neurological defect are rare in children. According to a study by over 5 years period, of the 323 patients treaded for spinal fracures only 10 of them has been accounted for fracture near or at Thoracolumbar junction[6].

Even though there were no signs of fracture in routine X-rays if patient had lomber or thoracal pain after a trauma historry, as presented in our report, MRI or CT is main necessity. Generally patients with no signs of neuorological defect had CT instead of a MRI because the result of clinical examination suggest there is no damage neither in spinalcord nor in vertebral ligamants and soft tissues. In our case we have peformed MRI, not CT because of the patients age and radiation risk of CT. Sledge et al[12] demonstrated MRI to be a effective tool in the diagnosis and classification of pediatric thoracolumbar injuries.

Acccording to previous research; thoracolumbar injuries in the pediatric population occur primarily between the ages of 10 and 16 [3]. The majority of the patients are male (63%)[2]. The most common mechanism of injuries to the thoracolumbar spine is sports-related injuries and vehicle accidents. Other mechanisms include falls, child abuse, pathological fractures, insufficiency fractures and gun-shot injuries[11]. Patient's story should be accounted for the diagnosis for thoracolumbal fracture.

After the scans, depending on fracture's stability neccessary treatment could be initiated. Instable fractures require surgical approach but stable fracture can generaly be treated with more conservative treatments such as TLSO (A thoracolumbosacral orthosis) brace. On the basis of good healing potential of younger patients, non-surgical management of unstable fractures in patients youger than 9 years of age is recommended by some authors, except neurological compromise, irreducible subluxation, polytrauma and brace/cast intolerance[2,13]. Non-operative treatment should include bed rests, and additional treatments for muscle spasm. For all non-operative treatments, close follow-up is necessary to confirm fracture stability and aligment.

## CONCLUSION:

As a result thoracolumbal fractures without neural defects are rare cases . We need further trials and publications in order to have a wider approach. In this study, 4 years old child patient with progresive severe back pain continuied two weeks after trauma determined a L-4 spine fracture neglected due to the traffic accident in MRI was presented. As a result, if the back pain is contiuned after trauma like our patient, the spinal fracture must be thought and made the MRI.

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