

CASE REPORT

Testicular pain due to thoracolumbar junction syndrome: A case report



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KEYWORDS

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Abstract

Introduction: Thoracolumbar junction syndrome (TLJS) occurs as a result of a minor intervertebral dysfunction at the thoracolumbar junction, and causes pain in the low back, hip, groin, testicles and lower abdomen. Likewise the case hereunder, TLJS can often be confused with other pathologies that may cause these symptoms and leading to misdiagnosis and false treatment.

Case report: A sixty-one year old man complained of pulsatile right testicle pain and low back pain after the instrumentation at L2–L5 level for spondylolisthesis. For his insistent complains, his right testicle was removed surgically and medical treatment was given for low back pain but his complains did not relieved. Physical examination revealed severe limitation of the lumbar spine, and pain in all directions. Posteroanterior pressure at the T12–L1 and L4–5 intervertebral spaces, at the T12 spinous processes and transverse pressure against the lateral aspect of the T12 spinous process were painful. Pinch and roll test and pressure over the right trochanteric and pubic region were painful. According to these findings, we diagnosed the patient as a TLJS but we could not apply diagnostic T12 periapophyseal joint block because the patient did not accept this intervention, manipulation could not be applied because of the instrumentation at the thoracolumbar spine. The spinal mobilization therapy to the thoracolumbar segment was applied gently and gabapentin was started at a low dose of 300mg/day, and increased gradually to 2400 mg/day. Exercise program and daily living activities were organized. His symptoms improved after 3 months of treatment. It was observed that the general well-being has continued after two years of follow up.

Conclusion: Thoracolumbar junction syndrome is a pathology that should be considered in the differential diagnosis of testicular pain.

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PALABRAS CLAVE

Síndrome de la unión
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Dolor testicular

Dolor testicular debido al síndrome de unión toracolumbar: reporte de un caso**Resumen**

Objetivo: El síndrome de unión toracolumbar (TLJS de sus siglas en inglés) se produce como consecuencia de una disfunción intervertebral menor en la unión toracolumbar, y causa dolor en la zona baja de la espalda, la cadera, la ingle, los testículos y el abdomen inferior. Como en el caso que se presenta, el TLJS puede confundirse a menudo con otras patologías que pueden causar estos síntomas, conduciendo a un diagnóstico erróneo y tratamiento equivocado.

Caso: Un hombre de 61 años refería dolor pulsátil en el testículo derecho y dolor en la zona baja de la espalda después de la instrumentación para espondilolistesis a nivel de L2-L5.

Por su insistente queja, fue sometido a orquiectomía derecha y se indicó tratamiento médico para el dolor de la zona baja de la espalda, a pesar de lo cual las molestias persistieron. Un examen físico bien hecho reveló una importante limitación de la columna lumbar y el dolor en todas las direcciones. La presión posteroanterior en los espacios intervertebrales T12-L1 y L4-L5, apófisis espinosas T12 y la presión transversal contra la cara lateral de la apófisis espinosa T12 eran dolorosas. El signo del pellizco o enrollamiento y la presión sobre la región del trocánter derecho y región púbica eran dolorosos. De acuerdo con estos hallazgos, se diagnosticó al paciente como un TLJS, pero no pudo aplicarse el diagnóstico por bloqueo periapofisario T12 porque el paciente no aceptó esta intervención; la manipulación no pudo aplicarse debido a la instrumentación de la columna dorsolumbar. La terapia de movilización espinal para el segmento toracolumbar se aplicó cuidadosamente y se instauró tratamiento con gabapentina a una dosis baja de 300 mg/día, la cual fue incrementándose gradualmente hasta 2.400 mg/día. Se organizó un programa de ejercicios y actividades de la vida diaria. Sus síntomas mejoraron después de 3 meses de tratamiento. Se observó que el bienestar general ha continuado después de 2 años de seguimiento.

Conclusión: El TLJS es una patología que debe ser considerada en el diagnóstico diferencial del dolor testicular.

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Introduction

Chronic testicular pain is one of the difficult medical evaluations. This condition certainly has a significant effect on patient quality of life. The cause is often unknown and it might require a multidisciplinary approach. Unsuccessful recognition of the origin of testicular pain and a high failure rate of surgical interventions has often led to poor outcomes, costly procedures, and years of psychological distress.¹ A frequently overlooked cause of testicular and buttock pain is the intervertebral dysfunction at the thoracolumbar junction (TLJ) of the spine.¹⁻⁵

Thoracolumbar junction syndrome (TLJS) is sometimes expounded as Maigne Syndrome which is a disorder that affects mostly T12, L1 and rarely T11, L2 spinal nerve roots. Low back and hip pain are certainly the most frequently encountered pain complaint.^{2,3} This syndrome also responsible for pseudovisceral pain, pubic tenderness, groin pain and testicular pain.^{2,6-8}

We present the case of a 61-year-old male patient who had orchiectomy due to testicular pain with poor outcome, and after the diagnosis of TLJS was treated with conservative management.

Case

A sixty-one year old man complained of pulsatile right testicle and low back pain after the instrumentation operation at L2-L5 level for spondylolisthesis two years ago. With these complains he was evaluated by psychologists and urologists for many times, and several antidepressant and analgesic drugs were prescribed. Because of weak response to conservative treatments, his right testicle was removed surgically.

The patient was consulted by a physiatrist because of his insistent low back pain. He had severe limitation in lumbar spine range of motion in all directions. On neurologic examination, straight leg raising test, and manual muscle strength tests were normal. Posteroanterior pressure at the intervertebral spaces, spinous processes and over the facet joints, and transvers pressure against the lateral aspect of the spinous process were done. Iliac crest point pressure test and skin pinch and roll test were performed to reveal pain originating from the thoracolumbar region. There was tenderness at T12-L1 intervertebral spaces and T12 spinous processes. Lateral pressure at the level of T12 was also painful. Pinch and roll test was positive on the involved side the skin overlying the buttock and iliac crest, and pressure over the right pubic region was painful. Neuropathic pain

was assessed using DN-4 neuropathic pain diagnostic questionnaire, and DN-4 score was 7. According to these findings, the patient was diagnosed as a TLJS. For confirmation we planned the diagnostic and therapeutic T12 periapophyseal block using a local anesthetic (2 cc of 2% lidocaine) but the patient refused the intervention. Also we could not make manipulation for the treatment because of the instrumentation of the thoracolumbar spine. The spinal mobilization therapy to the thoracolumbar segment was applied gently and gabapentin was started at a low dose of 300 mg/day, and increased gradually to 2400 mg/day. Strengthening exercise program for back and abdominal muscles and daily living activities were organized. Physical therapy modalities (transcutaneous electrical nerve stimulation, therapeutic ultrasound) were applied to the thoracolumbar region. His symptoms improved after 3 months treatment period. Gabapentin treatment was gradually decreased and ceased at fifth month of treatment. With a two-year follow up period his general well-being has been continuing.

Discussion

Thoracolumbar junction includes the T10–11, T11–12 and T12–L1 motion segments. Thoracic spine has more rotational function than lumbar spine because of different facet joint orientation from lumbar spine, but ribs restrict thoracic vertebral rotational function. Thus the thoracic spine motion occurs in the thoracolumbar, exposing the TLJ to rotational distress. Mostly T12, L1 and rarely T11, L2 spinal nerve roots are affected from the rotational distress.^{2,3} This affection can cause a syndrome called TLJS that may cause low back, hip, groin, and testicles in addition pseudovisceral pain.^{1–5,8}

The spinal nerve roots divide into two rami, ventral and dorsal, after exiting the intervertebral foramen.^{9,10} The dorsal ramus divides into medial and lateral branches. The medial branch is a motor branch and innervates the multifidus and interspinous muscles. The lateral branches of the thoracolumbar region innervates subcutaneous tissues of the lumbar and buttock area, facet joints, and supraspinous and interspinous ligaments and responsible for pain at the lower lumbar and crista iliaca region.^{2,10,11} The T10 and T11 ventral rami, which are intercostal nerves, end in the abdominal wall. The T12 and L1 ventral rami are subcostal and iliohypogastric nerves. They support the lower muscles of the abdominal wall, the skin of the groin area and the lateral surface of the hip. They are responsible for pseudovisceral and hip pain.^{3,9–11}

Pseudovisceral pain is felt in the lower abdomen, groin and testicles. This syndrome can mimic intestinal, urological, and gynecological problems, and can result in misdiagnosis and improper treatment of the patient.^{2,12} The symptoms of irritable bowel may be seen. TLJS has been indicated as a frequently overlooked cause of testicular, buttock and lower abdominal pain.^{7–12} Unsuccessful recognition of the origin of testicular pain and a high failure rate of surgical interventions has often led to poor outcomes, costly procedures, and years of psychological distress.¹³ In this case pulsatile right testicle pain started after the



Figure 1 Palpation over the spinous process at the TLJ.



Figure 2 Transvers pressure test on related spinous process.

instrumentation of the lumbar spine, which is interpreted to result from the increased rotational distress on the TLJ because of the instrumentation at L2–L5 level.

Chronic testicular pain is a difficult condition. Approximately 25% of patients with chronic orchialgia have no obvious cause.¹ Pain might be primarily caused by a pathology of the scrotum or groin, or be referred from another area. Local causes may include chronic infection of the testis or epididymis, testicular tumor, indirect inguinal hernia, hydrocele, spermatocele or varicocele. Referred pain might originate from the renal, gastrointestinal disorders or lumbar spine.^{13,14} A frequently overlooked cause of testicular pain is TLJS.^{1–5}

Physicians try to manage individuals with orchialgia by using antibiotic and nonsteroidal anti-inflammatory medications as the primary treatment. Surgical interventions, such as testicular denervation and orchiectomy, have been described as possible alternatives when conservative measures have failed.¹⁵

The diagnosis of TLJS is made on clinical grounds. Localized tenderness over the spinous process and apophyseal joint at the TLJ (Fig. 1), positive transvers pressure test on related spinous process (Fig. 2), positive iliac-crest point



Figure 3 Iliac-crest point test.



Figure 4 Pinch and roll test.

test (Fig. 3), and positive pinch and roll test (Fig. 4) are mainly clinical signs. The diagnosis is confirmed by a periapophyseal joint block.² However we could not do the periapophyseal joint block, since the case did not accept the intervention. We diagnosed TLJS in accordance with the clinical findings.

In most cases, TLJS can be treated by spinal mobilization and manipulation.²⁻⁵ Periapophyseal long-acting corticosteroid injections can be done and electrotherapy is beneficial for those with contraindications for spinal manipulative therapy. Radiofrequency electrocoagulation and/or surgical denervation of the involved apophyseal joint can be applied in resistant cases. Strengthening exercise program for paraspinal and abdominal muscles should be given to the patients. Regulation of activities of daily living is very important. The avoidance of the rotational movements of the thoracolumbar spine is essential for recurrence.²⁻⁶

We could not do manipulative treatment because of the spinal fusion, but we gently applied TLJ mobilization. TLJS is evaluated as neuropathic pain due to the affection of the nerves in the related region. We thought that gabapentin treatment could be support other treatments. As a result

the case had benefit from all these applications and medications.

In conclusion, the diagnosis in cases of orchialgia, in which local causes of scrotal pain have been excluded, spinal origins of the symptoms and TLJS should be considered.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors declare and guarantee that they are in possession of a document signed by the patients whose personal data is included in the article.

Conflict of interests

The authors declare no conflict of interest.

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