Case Series

Cauda equina syndrome during pregnancy: A condition to consider

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1. Introduction

Cauda equina syndrome (CES) comprises several symptoms and signs, usually side effects of a massive prolapse of an intervertebral disc. Its clinical presentation changes depending on the degree of compression of the filum terminale. Urological symptoms are the most frequent ones, including the sensation of incomplete emptying of the bladder, incontinence and painful urinary retention with sphincter malfunction. After these symptoms, low back pain with sciatica and sensitive disturbances in the perineal area are the most common ones.

The main problems appear due to a delayed diagnosis and treatment with variable results depending on time to surgery [1]. Consequently, large trials were carried out to identify pre-surgical variables associated with better outcomes after surgery [2,3–6].

Low back pain during pregnancy affects up to 56% of all pregnant women but only 1 in every 10,000 pregnant women had symptomatic lumbar disc herniation. According to modern obstetric practice, emergency surgery should be performed under safe conditions at all gestation stages. The authors present two cases to illustrate the diagnostic approach, treatment and prognosis of this rare disorder in pregnant women and report them to this paper in line with the PROCESS criteria [7].

2. Case reports

Case one. A 32-year-old primigravid woman with left recurrent lumbosciatica, who was diagnosed by MRI with L5-S1 disc herniation in 2013. She was admitted as an emergency in 2014. 48 h after natural birth with extended labor period, and the Department of Gynecology asked for our assessment after their initial evaluation. Her medical history showed low back pain irradiating to the lower limbs, perineal anesthesia and dysesthesia with urinary incontinence of five hours of evolution. We found objective saddle anesthesia and positive Lasègue sign <40°. All other motor functions and osteotendinous reflexes throughout both lower limbs were normal. We verified the existence of bladder dysfunction without anal sphincter tone involvement.

An emergency MRI was performed within the first 6 h at the ER, revealing disc extrusion at L5-S1 level with compression of lumbosacral nerves (Fig. 1). The patient underwent surgery within the first 24 h from diagnosis with epidural anesthesia and intravenous sedation. Standard laminectomy and root nerve decompression were performed. Forty-eight hours after surgery the patient experienced relief from back and leg pain.

Three months after surgery the patient was free from her back and leg pain with full recovery of the bladder function, but she had persistent saddle hypoesthesia at the perineum that made her feel uncomfortable during sexual relations. At the 2-year follow-up, she showed gradual improvement of saddle hypoesthesia.

Case two. A 39-year-old second-gravid woman with previous cesarean section, 38 weeks pregnant with history of intermittent
low back pain and MRI in 2015 showing lumbar disc protrusions in the L3-L4, L4-L5 and L5-S1 segments.

Our orthopedic evaluation was requested to assess her acute low back pain irradiating to both lower limbs with urinary incontinence, which worsened with bladder anesthesia and fecal incontinence. Hallux extension weakness (L5 root nerve) of 2/5 without capability to walk on heels was highlighted. Urgent MRI was performed, revealing L5-S1 disc protrusion (Fig. 2).

The patient gave birth to a healthy girl at 38 weeks of gestation by prophylactic cesarean section performed due to nuchal cord. She underwent emergency laminectomy, root nerve decompression and L5-S1 lumbar instrumented fusion (<24 h from a final diagnosis) (Fig. 3).

The acute postoperative stage did not show any complications. Saddle hypoesthesia disappeared 72 h after surgery with full motor improvement at discharge from hospital. At the three-months follow-up, the patient had fully recovered from fecal and urinary dysfunction with no associated sexual dysesthesia.

In case one, disc herniation was located below the S1 root, in contact with the rest of sacral nerves, which explains the absence of distal sensitive and motor symptoms. In case two, both L5 root nerves were compressed.

3. Discussion and conclusion

Cauda equina syndrome is an unusual entity that appears in between 2–6% of all cases of disc herniation in the lumbar segment. Related post-traumatic presentations are extremely rare [2].

In nearly 70% of all cases of CES, the patients had chronic low back pain, with or without sciatic pain, and bilateral symptoms usually appear in the final stages [1]. In the other 30% of cases, those with acute forms of CES, diagnosis is usually delayed due to unidentified symptoms [1, 8, 6]. Acute forms are frequently associated with severe bilateral sciatica and dorsal feet flexion weakness, and may be accompanied by reduction of quadriceps strength and urinary and/or fecal incontinence.

There is controversy in the literature about the timing of surgical decompression, but several studies and meta-analysis reports better prognosis for patients who undergo surgery within the first 48 h from the beginning of symptoms [1, 2]. Results are not related to time until surgery, but with the presence or absence of neurological involvement, with poor improvement on vesical function when complete CES is established before surgery is performed [9, 6].

In view of these findings, every physician should recognize this clinical syndrome and establish a proper diagnosis and treatment [9, 1, 10].

Conflict of interest

No conflicts of interest for any author.

Sources of funding

No sources of funding were used.

Ethical approval

After consultation of University Hospital of Salamanca ethics committee approval was achieved. This is a retrospective case report series with positive patients signed consents.

Consent

Written informed consent was obtained from both patients for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

David Pescador Hernandez and Juan Francisco Blanco Blanco contributed analysing data and reviewing the article text.

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Guarantor

Mr. Ph. Dr. Juan Fernando Jiménez Viseu Pinheiro is the guarantor of this case report.
References

[1] S. Shapiro, Medical realities of cauda equina syndrome secondary to lumbar disc herniation, Spine (Phila, Pa 1976) 25 (3) (2000) 348–351, discussion 52.
[2] U.M. Ahn, N.U. Ahn, J.M. Buchowski, E.S. Garrett, A.N. Sieber, J.P. Kostuik, Cauda equina syndrome secondary to lumbar disc herniation: a meta-analysis of surgical outcomes, Spine (Phila, Pa 1976) 25 (12) (2000) 1515–1522.
[3] N.V. Todd, Cauda equina syndrome: the timing of surgery probably does influence outcome, Br. J. Neurosurg. 19 (4) (2005) 301–306, discussion 7–8.
[4] S.A. Hussain, R.W. Gullan, B.P. Chitnavis, Cauda equina syndrome: outcome and implications for management, Br. J. Neurosurg. 17 (2) (2003) 164–167.
[5] J.P. Kostuik, Medicolegal consequences of cauda equina syndrome: an overview, Neurosurg. Focus 16 (6) (2004), e8.
[6] C.W. McGrother, M.M. Donaldson, C. Shaw, R.J. Matthews, T.A. Hayward, H.M. Dallosso, et al., Storage symptoms of the bladder: prevalence, incidence and need for services in the UK, BJU Int. 93 (6) (2004) 763–769.
[7] R.A. Agha, A.J. Fowler, S. Rajmohan, I. Barai, D.P. Orgill, P. Group, Preferred reporting of case series in surgery: the PROCESS guidelines, Int. J. Surg. 36 (Pt. A) (2016) 319–323.
[8] L. Chong Lich Ng, S. Tafazal, S. Longworth, P. Sell, Cauda equina syndrome: an audit. Can we do better? J. Orthop. Med. 26 (2004).
[9] J.R. Gleave, R. Macfarlane, Cauda equina syndrome: what is the relationship between timing of surgery and outcome? Br. J. Neurosurg. 16 (4) (2002) 325–328.
[10] A.M. Chau, LL. Xu, N.R. Pelzer, C. Gragnaniello, Timing of surgical intervention in cauda equina syndrome: a systematic critical review, World Neurosurg. 81 (3–4) (2014) 640–650.

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