NON-TRAUMATIC CAUDA EQUINA SYNDROME IN ADULTS. WHAT ETIOLOGY? ABOUT 76 CASES.
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ABSTRACT Cauda equina syndrome is a rare neurological disease caused by compression of the cauda equina. The ponytail consists of the spinal nerves L2-L5, S1-S5 and the coccygeal nerve. We carried out a retrospective study over a period of two years (24 months), ranging from January 01, 2020, to December 31, 2021, from the files of patients referred for lumbosacral magnetic resonance imaging (MRI) or CT scan exploration in the context of low back pain or sciatica resistant to disabling medical treatment, a neurological deficit of the lower limbs associated or not with the bladder and/or rectal sphincter disorders, without any notion of trauma, with as judgment criterion the demonstration of an anomaly responsible for compression of the roots of the ponytail. We collected seventy-six (76) patients, with an average age of 53.5 years old and extremes ages of 15 years and 89 years. In addition, we noted a female predominance with a sex ratio of 1.5 in favour of the female sex. Most of the patients were explored with MRI in 89% of cases. Our patient history was dominated by cancer pathologies, with breast cancer in 24% of cases and prostatic cancer in 18% of cases. The symptomatology presented by the patients was mainly represented by sphincteric disorders in 47% of cases and lumboscialitica in 28% of cases. The conflicting disc herniation dominated the etiologies in 36% of cases, followed by secondary vertebral neoplastic lesions in 20% of cases. MRI and CT scans are very important radiological modalities in characterizing lesions responsible for cauda equina syndrome in adults. In addition, the CT scan is effective in the study of bone and the MRI in the study of nerve roots, intervertebral discs and paravertebral soft tissues.

KEYWORDS Cauda equina syndrome, etiology, Imaging

Introduction Cauda equina syndrome is a rare neurological disease caused by compression of the cauda equina. The ponytail consists of the spinal nerves L2-L5, S1-S5 and the coccygeal nerve. The aim of our study is:

- To illustrate the radiological characteristics of non-traumatic pathologies responsible for the cauda equina syndrome in magnetic resonance imaging (MRI) and computed tomography.
- To enlighten clinicians on the location details of these lesions for emergency decisions.

Materials and methods We carried out a retrospective study over a period of two years (24 months), ranging from January 01, 2020, to December 31, 2021, from the files of patients referred for lumbosacral MRI or CT scan exploration in the context of low back pain or sciatica resistant to disabling medical treatment, a neurological deficit of the lower limbs associated or not with the bladder and/or rectal sphincter disorders, without any notion of trauma.

The judgment criterion demonstrated an anomaly responsible for the compression of the roots of the ponytail.

Data processing was performed using Excel software.
Results

- Seventy-six (76) patients were collected.
- Average age: 53.5 years, with the extremes of 15 years and 89 years.
- Gender: 46 women and 30 men.
- Exploration method: MRI n = 68, CT scan n = 8.

Discussion

Cauda Equina Syndrome is a surgical emergency caused by compression of the nerve roots in the ponytail.[1]

The incidence of cauda equina syndrome is low, less than 1 per 100,000 people in asymptomatic populations per year.[2]

Cauda Equina Syndrome is a syndrome of symptoms and signs that do not need to be all present to make a diagnosis. The five hallmarks are bilateral neurogenic sciatica, decreased perineal sensation, impaired bladder function, painless urinary retention, loss of anal tone, and sexual dysfunction.[3]

In the work of Bell et al.[4] involving 32 patients, voiding disorders and low back pain were present in all patients. Data from the literature consider sphincter disorders to be an essential feature of cauda equina syndrome.[5]

The herniated disc is the leading cause of cauda equina syndrome.[6,7]

Secondary lesions are more implicated in cauda equina syndrome. Bagley and Gokaslan [8] specify that lung carcinoma comes first (40 to 85%), followed by breast cancer (11%). Other carcinomas like renal (4%), lymphoma (3%) and colorectal carcinoma (3%) are also found in the spine. These tumors can mainly involve bone or can be intradural or extradural. Secondary leptomeningeal involvement has also been reported by Bennett et al.[9] who precised that metastases, including pulmonary and mammary primitives, are particularly associated with leptomeningeal metastases without specifying the percent-

Figure 1 MRI of the lumbar spine, T2 axial (A) and sagittal (B) sequences: large herniated disc migrated subligamentally to the L5-S1 stage responsible for back pain sphincteric disorders in a 27-year-old patient.
Figure 2 MRI of the lumbar spine: T2 sagittal and axial (A and B), T1 axial Fat Sat after injection of gadolinium (C): Lesions of the vertebral bodies of L4 and L5 with endocanal extension and engraftment of the roots of the cauda equina responsible of sphincteric disorders in a 65-year-old patient followed for pleuropulmonary cancer.

Figure 3 CT scan of the lumbar spine: Axial and sagittal slices in soft tissue window after injection of contrast product (A and B), sagittal slice in the bone window (C): L4-L5 discovertebral involvement with collections of both heads of the right iliac psoas muscle and ipsilateral longissimus muscules, with epiduritis in a 32-year-old patient with tuberculous spondylodiscitis.

ages of each entity. The metastasis of prostate cancer has also been reported by Lefresne et al.[10]

Malignant hematologic involvement has also been described as responsible for cauda equina syndrome by Pisklakova et al.[11] in plasmacytoma and multiple myeloma; Walton et al.[12] incriminate an infiltration by acute myeloid leukaemia.

Rheumatologic causes are also responsible for equine syndromes, such as ankylosing spondylitis cited by Tang et al.[13]

Conclusion

MRI and CT scans are important radiological modalities in characterizing lesions responsible for cauda equina syndrome in adults. In addition, the CT scan is effective in the study of bone and the MRI in the study of nerve roots, intervertebral discs and paravertebral soft tissues.

Competing interests

The authors declare no conflict of interest.

Contributions from authors

All the authors contributed to the conduct of this work. They also state that they have read and approved the final version of the manuscript.

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