**Summary**

**Introduction:**

Infectious spondylodiscitis is characterized by the involvement of two adjacent vertebrae and the intervening disc. Incidence rate of the disease is estimated at 0.4-2 cases per

100000 per year. The most common infectious agent is *Staphylococcus aureus* causing

pyogenic spondylodiscitis*.* Granulomatous/non-pyogenic infections of the spine are most frequently caused by *Mycobacterium tuberculosis* and fungi. Clinical symptoms are nonspecific. Early diagnosis and appropriate treatment can prevent unfavorable irreversible sequela for the patient.

Significant developments in techniques of imaging of pathological tissues raised

expectations among the clinicians regarding possibility to distinguish between tuberculous spondylodiscitis and pyogenic spondylodiscitis on MR images.

The aim of this study was to identify the most common features of spondylodiscitis on MR images which have an impact on clinical decisions and features which could help in differentiation between pyogenic and tuberculous spondylodiscitis.

**Material and Methods:**

The retrospective analysis of MR images obtained from 53 patients with confirmed spondylodiscitis (27 with pyogenic spondylodiscitis, and 26 with tuberculous spondylodiscitis) was performed. Data acquisition was performed using 1.5 T MRI scanner where images were obtained using similar protocols. T1-weighted images, T1 FS images with and without contrast enhancement were subject to assessment in axial and sagittal planes and T2 TIRM images in sagittal planes.

**Results:**

The most common features of spondylodiscitis regardless the causing agent were: involvement of the lumbar spine, then of the thoracic spine, involvement of two adjacent vertebrae and the intervening disc, hypointense signal of the vertebral bodies on T1 weighted images, hyperintense signal of the vertebral bodies on T2 TIRM images, enhancement of the vertebral bodies, isointense signal of the intervertebral disc on T1 weighted images, heterogenic or fluid signal of the intervertebral disc on T2 TIRM images, peripheral

enhancement of the intervertebral disc, destruction of the vertebral bodies and the intervening disc, erosion and destruction of the endplates. The additional features were: involvement of the posterior elements of the vertebra, paraspinal abnormal contrast enhancement, paraspinal and epidural abscesses, disc abscesses.

Prevailing features of pyogenic spondylodiscitis included: involvement of the lumbar spine, ill-defined paraspinal abnormal contrast enhancement, diffuse/homogeneous contrast enhancement of vertebral bodies, low-grade destruction of vertebral bodies, hyperintense/ homogeneous signal from the vertebral bodies on T2 TIRM images. Prevailing features of tuberculous spondylodiscitis included: involvement of the thoracic spine, involvement of 2 or more adjacent vertebral bodies, severe destruction of the vertebral body, focal/heterogeneous contrast enhancement of vertebral bodies, heterogeneous signal from the vertebral bodies on T2 TIRM images, well-defined paraspinal abnormal contrast enhancement, paraspinal and epidural abscesses, meningeal enhancement at the affected spine level.

**Conclusions:**

The analysis of MR images of patients with spondylodiscitis allowed to distinguish the most common features of spondylodiscitis regardless the causing agent and the features characteristic for pyogenic and tuberculous spondylodiscitis which could help to differentiate between these two types of infection and apply the proper treatment.