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FACET CYSTS

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ABSTRACT

Objective: The aim of the study is to investigate the facet cysts from MRI of patients from Neurosurgery outpatient clinic even if they are symptomatic or not, levels, numbers and side.

Materials and Method: Two-hundred and fifty adult patients who underwent a dedicated lumbar spine MRI with or without contrast between 2015 and 2018 at Neurosurgery outpatient clinic are included to our study and investigated from patient's files and radiological PACS achieve retrospectively.

Results: Two-hundred and fifty adult patients with a mean of age 62 ± 13 had a ratio of 130 (52 %) female and 120 (48 %) male. The indications of patients to make radio diagnostic MRI were radiculopathy 178 (71.2 %), back pain 197 (78.8 %), trauma 47 (18.8 %) and non-specific pain 23 (9.2 %). We found a total of 362 cysts from 250 patients. There are some patients that have more than one facet cyst. There are more cysts on the left side and the highest percentage for the level was L4-L5. We found only 6 patients (2.4 %) that have symptomatic facet cyst.

Conclusions: Lumbar facet joint synovial cysts are synovial lined outpouchings that arise from the facet joint capsule. While these cysts may occur at any lumbar level, they most commonly occur at the L4–L5 facets in degenerative facet arthropathy. Considering all spine conditions that can cause radiculopathy, facet cysts are regarded as an uncommon cause of radiculopathy.

Key Words: Facet cyst, lumbar synovial cyst, facet joint

Level of evidence: Retrospective clinical study, Level III

INTRODUCTION

Facet cysts are most common in the lumbar spine that are round, fluid-containing lesions and could arise around the facet joint in the foraminal, epidural or paravertebral area [3]. Von Gruker is known to be the first to describe an intraspinal ganglion cyst during an autopsy in 1880 [7]. Since then, many studies reported the prevalence of facet cysts: during surgery, on CT scan, and on MRI and it is between 0.1 % and 22 % in the literature mostly [5-6,12].

Facet cysts can also be asymptomatic and found incidentally and they could lead to radiculopathy because of the nerve root compression [11]. Facet cysts are known as an uncommon cause of leg pain and radiculopathy when compared with all spine conditions with radiculopathy. There are researches that point out an association of facet cysts with degenerative spine disease and spinal instability [1]. Diagnosis of the facet cyst increased because of the magnetic resonance imaging (MRI) is being used often (Khan).

The aim of the study is to investigate the facet cysts from MRI of patients from neurosurgery outpatient clinic according to they are symptomatic or not, levels, numbers and side.

MATERIALS AND METHOD

Two-hundred and fifty adult patients who underwent a dedicated lumbar spine MRI with or without contrast between 2015 and 2018 at Neurosurgery outpatient clinic are included to our

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study and investigated from patient's files and radiological PACS archives retrospectively.

Our outcome measure was the presence of a synovial facet cyst but perineural, Tarlov, intraosseous or subchondral cysts were not included to study as synovial facet cysts. We investigated also whether the facet cyst was symptomatic or asymptomatic with the presence of radiculopathy or not in patient's history and neurological examination notes.

Statistical Analyses

The categorical variable gender was presented as frequency and percent. The comparisons between independent two groups were conducted by Mann-Whitney U test. The changes during the follow-ups were compared by using Friedman test, and when a statistically significant difference was observed, post-hoc analyses were performed by Wilcoxon test with Bonferroni correction. SPSS software version 21 (IBM Inc., USA) was used for the statistical analyses.

Table-1. Patients demographic data

All Patients	**n (%)**
Age (mean±SD)	62±13
Gender	
Male	120 (48)
Female	130 (52)

Table-2. Percentage of patients according to indication for MRI

Indication for MRI	**n (%)**
Radiculopathy	178 (71.2)
Back pain	197 (78.8)
Nonspecific pain	23 (9.2)
Trauma	47 (18.8)

RESULTS

Two-hundred and fifty adult patients with a mean of age 62 ± 13 had a ratio of 130 (52 %) female and 120 (48 %) male (Table-1).

The indications of patients to make radio diagnostic MRI were radiculopathy 178 (71.2 %), back pain 197 (78.8 %), trauma 47(18.8 %) and non specific pain 23 (9.2 %). There could be more than one indication for requesting MRI (Table-2).

We found a total of 362 cysts from 250 patients. There are some patients that have more than one facet cyst. There are more cysts on the left side and the highest percentage for the level was L4-L5. (Table-3).

We found only 6 patients (2.4 %) that have symptomatic facet cyst.

DISCUSSION

These cysts can be histopathological classified into synovial, ganglion, and ligamentum flavum cysts; however, this distinction is of no clinical relevance and therefore often ignored [4]. NeuroSpine Surgery Research Group (NSURG) made a grading system for facet cysts according to level of comprimising spinal canal and degree of listhesis from grade 1 to 5 [2].

Campbell et al reported the classification of lumbar facet joint cysts using the NSURG Grading Score and Correlation with Recurrence and Clinical Outcomes and they concluded with that the proposed NeuroSpine Surgery Research Group Classification System for lumbar facet joint cysts is effective in identifying patients most likely to endure a recurrent cyst after decompressive surgery adn patients with grades 4 and 5 cysts should be considered for decompressive surgery with concomitant stabilization of the involved segments on initial presentation [2].

Table-3. Evaluation of facet cysts

Number of cysts per patient	**n (%)**
1 cyst	269 (74.3)
2 cysts	112 (30.9)
3 cysts	13 (3.5)
4 cysts	5 (1.3)
Side per cyst	**n (%)**
Left	197 (54.4)
Right	165 (45.5)
Level per cyst	**n (%)**
T12-L1	9 (2.4)
L1-L2	41 (11.3)
L2-L3	40 (11)
L3-L4	86 (23.7)
L4-L5	96 (26.5)
L5-S1	90 (24.8)
Patients With Facet Cyst	250 patients/ 362 cysts

Shah et al reported direct Computed Tomography guided lumbar facet synovial cyst puncture was technically successful in 98 % of procedures and at first postprocedural follow-up, 86 % of patients had a complete or partial symptomatic response [9].

Park et al demonstrated that younger patients had a higher prevalence of facet cysts, whereas sex distribution was comparable [6]. Varghese et al demonstrated no association of facet cyst prevalence with age or sex [10]. Doyle and Merrilees reported that their study was demonstrating an association of older age with having a facet cyst [3].

Janssen et al reported that 1 in 15 patients have at least 1 synovial facet cyst and about half of them are symptomatic and half are asymptomatic [5]. Thus having a facet cyst that symptomatic or asymptomatic is strongly associated with increased age, supporting the theory that degenerative spine disease underlies development of facet cysts. Also they found that large cyst size and anterior location of the cyst are associated with an increased likelihood of having neurological symptoms [5].

CONCLUSION

Lumbar facet joint synovial cysts are synovial lined outpouchings that arise from the facet joint capsule. While these cysts may occur at any lumbar level, they most commonly occur at the L4–L5 facets in degenerative facet arthropathy. Considering all spine conditions that can cause radiculopathy, facet cysts are regarded as an uncommon cause of radiculopathy.

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