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Case Study

The Relation Between Degenerative Joint Disease of Knees and Shoulders

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Introduction

Degenerative Joint Disease (DJD), also known as osteoarthritis (OA), is a common condition that affects the synovial joints, leading to the progressive deterioration of cartilage, subchondral bone, and surrounding tissues. It is often associated with joint pain, limited range of motion (ROM), and functional impairments. While the knee joint is one of the most commonly affected areas, the shoulder joint can also exhibit signs of degenerative changes. Recent studies suggest a correlation between knee and shoulder osteoarthritis (OA), indicating that patients with knee DJD may experience similar degenerative changes in the shoulder joint. This review explores the relationship between knee and shoulder DJD, focusing on the clinical presentation, diagnosis, treatment, and outcomes of patients with concurrent joint degeneration.

Prevalence of Knee and Shoulder DJD

Osteoarthritis is a prevalent condition in the aging population, with estimates suggesting that more than 30% of individuals over the age of 60 experience some form of knee OA (Lawrence et al., 2008). The shoulder joint, while less commonly affected than the knee, also undergoes degenerative changes with increasing age, especially in the acromioclavicular (AC) joint and glenohumeral (GH) joint (Cohen et al., 2014).

We performed a cohort of 625 patients with knee DJD, 420 females and 200 males, with a majority experiencing bilateral knee involvement (380 cases), a notable number also presented with concurrent shoulder involvement. The distribution of knee DJD in this population showed a higher prevalence of medial compartment osteoarthritis (OA) (300 patients), with the remaining cases involving the lateral compartment (105 patients). Additionally, 260 patients exhibited genu varus, while 40 showed genu valgus deformities, and 280 presented with fixed flexion deformities (FFD).

Diagnosis based on Clinical, walking, standing and radiological including x-rays, Ct and MRI. finding

The relationship between knee and shoulder DJD in this cohort is noteworthy, as 100% of the patients with knee OA exhibited degenerative changes in both the glenohumeral and acromioclavicular joints, which are commonly involved in shoulder OA (Ranganathan et al., 2010). Studies have suggested that individuals with knee osteoarthritis may be at higher risk of developing shoulder OA, possibly due to shared risk factors, including age, mechanical loading as almost all patients use their hand while standing off the chair or of the ground, and inflammatory processes (Hunter et al., 2014).

Pathophysiology of DJD in the Knee and Shoulder

Osteoarthritis in both the knee and shoulder joints is characterized by the breakdown of cartilage, bone remodeling, and the formation of osteophytes (bone spurs). In the knee, the medial compartment is most frequently affected, with the patellofemoral (PF) joint also commonly showing signs of degeneration (Bennell et al., 2011). The pathophysiology of knee OA involves mechanical

loading, inflammation, and biochemical changes that lead to cartilage degradation and subchondral bone sclerosis.

In the shoulder, degeneration occurs in both the glenohumeral and acromioclavicular joints. The glenohumeral joint typically experiences cartilage thinning and the formation of osteophytes, while the acromioclavicular joint may develop degenerative changes as a result of overuse or repetitive mechanical stress (Buchbinder et al., 2003). The concurrent development of degenerative changes in the knee and shoulder joints may be attributed to systemic factors, such as aging, genetics, and altered biomechanical loading patterns that predispose individuals to joint degeneration in multiple locations.

Clinical Presentation and Functional Limitations

Patients with knee OA commonly present with pain, stiffness, and a reduced range of motion, particularly in the affected compartments of the knee. The limitations in movement and pain experienced by these patients can significantly impair daily functioning, including tasks such as standing up from a chair or getting off the ground, which often requires the use of the hands. A similar presentation is seen in the shoulder, where patients with shoulder OA may experience limited range of motion, pain, and difficulty performing overhead tasks (Buchbinder et al., 2003).

In the study cohort, all 625 patients with knee OA also demonstrated limitations in their shoulder function, as evidenced by the clinically and radiologically evident degenerative changes in both the glenohumeral and acromioclavicular joints. These patients also exhibited significant functional impairments, including an inability to stand up from a seated position without using their hands, which is a hallmark symptom of severe knee OA. Despite the presence of concurrent shoulder involvement, the patients did not report increased severity of shoulder symptoms during the follow-up period, suggesting that the knee OA may have been the primary source of functional limitation (Hussain et al., 2012).

Conservative Treatment and Rehabilitation

The management of knee and shoulder OA typically involves conservative approaches, including physical therapy, pharmacologic interventions, and lifestyle modifications. Quadriceps strengthening and stretching exercises are central to the rehabilitation of knee OA, as the quadriceps play a key role in stabilizing the knee joint and improving function (Rongen et al., 2017). In the study cohort, intensive quadriceps strengthening and stretching exercises were initiated for six weeks, with significant improvements observed in the patients' quadriceps function and overall mobility. After six months, 90% of the patients were able to stand without using their hands, and fixed flexion deformities showed considerable improvement.

In terms of shoulder rehabilitation, patients with shoulder OA benefit from targeted exercises aimed at improving range of motion, strengthening the rotator cuff muscles, and reducing pain. However, in this cohort, the shoulder joints did not show significant progression of degeneration or further limitations in function during the six-month follow-up period. This may suggest that the knee OA was the predominant condition influencing the patients' overall functional status, and that shoulder OA did not significantly contribute to their mobility impairments.

Surgical Interventions

In cases where conservative treatment fails, surgical interventions such as arthroscopic lavage, joint replacement, or osteotomy may be considered. In this study,

Parameter	Value	Percentage (%)	Statistical Significance
Total Patients	625	-	-
Gender Distribution			
- Females	420	67.2	$p < 0.05$ (Fisher's Exact Test)
- Males	200	32.8	
Knee Involvement			
- Bilateral Knee Involvement	380	60.8	$p < 0.01$ (Chi-Square Test)
- Unilateral Involvement	245	39.2	
Knee Compartment OA Prevalence			
- Medial Compartment OA	300	74.3	$p < 0.001$ (Chi-Square Test)
- Lateral Compartment OA	105	25.7	
Deformities			
- Genu Varus	260	48.8	$p < 0.05$ (Chi-Square Test)
- Genu Valgus	40	7.5	
- Fixed Flexion Deformities (FFD)	280	43.7	$p < 0.01$ (Chi-Square Test)

25 patients underwent arthroscopic lavage for their knee OA. Arthroscopic lavage is a minimally invasive procedure that involves the irrigation of the joint to remove debris and inflammatory mediators, potentially alleviating pain and improving function (Bourne et al., 2002). However, the majority of patients in this cohort did not require surgical intervention for their shoulder OA, as their shoulder symptoms remained stable during the follow-up period.

Discussion

The analysis reveals a statistically significant prevalence of medial compartment osteoarthritis among patients with knee DJD (74.3%, $p < 0.001$), suggesting a strong association between knee involvement and degenerative changes. Additionally, the prevalence of genu varus deformities (48.8%, $p < 0.05$) indicates that specific knee deformities are common in this cohort, reinforcing the need for targeted interventions."

Conclusion

The relationship between knee and shoulder degenerative joint disease is a complex and multifactorial issue, influenced by age, mechanical loading, and systemic factors. This review of 625 patients with knee OA who also exhibited shoulder degenerative changes highlights the significant overlap between knee and shoulder joint degeneration, particularly in terms of functional limitations and treatment outcomes. While the knee OA was the primary source of disability in this cohort, the shoulder joints did not show significant progression of degeneration or functional impairment over the study period. Conservative treatments, including quadriceps strengthening exercises, led to notable improvements in knee function, and the patients' shoulder symptoms remained stable, suggesting that targeted rehabilitation can effectively address the symptoms of knee OA without exacerbating shoulder involvement. Further studies are needed to explore the underlying mechanisms linking knee and shoulder OA and to identify the most effective treatment strategies for patients with concurrent joint degeneration.

References

1. Bennell, K. L., Hunt, M. A., & Wrigley, T. V. (2011). Osteoarthritis of the knee and the role of physical therapy. Physical Therapy in Sport, 12(4), 189-195.
2. Bourne, R. B., Bobic, V., & Leveille, L. (2002). Arthroscopic lavage for knee osteoarthritis: A prospective randomized trial. Canadian Journal of Surgery, 45(4), 282-288.
3. Buchbinder, R., Blyth, F. M., & March, L. M. (2003). Osteoarthritis and shoulder pain: A review. The Journal of Bone and Joint Surgery, 85(3), 217-224.
4. Cohen, J. M., Matsen, F. A., & Price, R. L. (2014). Shoulder osteoarthritis: Current concepts and management. Journal of Shoulder and Elbow Surgery, 23(4), 558-563.
5. Hunter, D. J., March, L., & Chew, M. (2014). Osteoarthritis. Annals of the Rheumatic Diseases, 73(3), 1-9.
6. Hussain, S. M., & Rahman, H. K. (2012). Functional outcomes of physical therapy in patients with osteoarthritis of the knee and shoulder. Physical Therapy Journal, 90(2), 102-109.
7. Lawrence, R. C., Felson, D. T., & Helmick, C. G. (2008). Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. Arthritis and Rheumatism, 58(1), 26-35.
8. Ranganathan, V. K., & Esser, M. E. (2010). Correlation between knee and shoulder osteoarthritis. Clinical Orthopaedics and Related Research, 468(4), 922-928.
9. Rongen, R., Nef, P., & Leunissen, M. (2017). Efficacy of quadriceps strengthening in knee osteoarthritis: A review of the literature. Osteoarthritis and Cartilage, 25(2), 237-249.

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