

# A Triple Shoulder Pathology: Paralabral Cyst Associated with SLAP Lesion and Subacromial Impingement - A Case Report

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## ABSTRACT

Shoulder pain is a common yet diagnostically challenging condition. Combined pathologies, such as a SLAP lesion, paralabral cyst, and subacromial impingement, are rare but significant causes of chronic pain and dysfunction. A 24-year-old male patient experienced chronic left shoulder pain and difficulty lifting the arm following a prior clavicle injury. MRI showed supraspinatus tendinopathy, a large paralabral cyst, and subacromial bursitis. Arthroscopic exploration confirmed a type II SLAP lesion with associated subacromial impingement. The patient underwent cyst excision, SLAP repair with an absorbable anchor, and subacromial decompression. Postoperative rehabilitation focused on early mobilization with assisted forward flexion. One month after surgery, the patient regained near-normal shoulder function with complete pain relief and no complications. Triple shoulder pathology is uncommon but can result from trauma or previous surgical procedures. MRI plays a crucial role in diagnosis, while arthroscopy allows direct visualization and targeted treatment. A structured rehabilitation plan is essential to restore shoulder function and prevent chronic disability. Thorough evaluation and

multimodal management, including imaging, arthroscopy, and rehabilitation, are vital in addressing complex shoulder lesions for optimal recovery.

**Keywords:** paralabral cyst, type II SLAP lesion, subacromial impingement, arthroscopy, rehabilitation

## INTRODUCTION

Shoulder pain is one of the most common musculoskeletal complaints in the community and is often found in orthopedic and trauma practices. Symptoms often appear as pain and limitation of motion, even though the underlying causes are diverse and complex.<sup>1</sup> A study conducted in Scandinavia by Nygren et al. (1995) showed that neck and shoulder disorders accounted for about 18% of all sick leave cases. These findings confirm that complaints in these areas not only impact on individual health, but also have significant social and economic implications.<sup>2,3</sup> Thus, a comprehensive clinical assessment is essential, including history taking, physical examination, as well as supporting examinations such as MRI to detect structural abnormalities precisely.

One underreported yet clinically important cause of shoulder pain is superior labrum

anterior to posterior (SLAP) lesion. This injury is reported to have an incidence of around 6 percent and is generally only definitively identified through arthroscopic procedures.<sup>4</sup> Superior labrum anterior to posterior lesions may be accompanied by the formation of a paralabral cyst that has the potential to compress the suprascapular nerve. The combination of these abnormalities with rotator cuff dysfunction or subacromial impingement can exacerbate shoulder biomechanical disturbances, cause persistent pain, and decrease daily activity function.<sup>5</sup>

This case report presents a chronic shoulder pain involving a SLAP lesion, paralabral cyst, and subacromial impingement following clavicle fixation. It underscores the importance of comprehensive assessment, anatomical-functional insight,

and targeted rehabilitation to prevent dysfunction progression and restore shoulder function.

## CASE PRESENTATION

A 24-year-old male patient complained of left shoulder pain since the past year, accompanied by limitations in lifting the arm up. The complaint was preceded by a trauma while playing soccer two years ago, when the left shoulder hit the ground directly. No paresthesias, distal weakness, or history of dislocation were found. Physical examination revealed anterolateral tenderness and limited active range of motion, with a positive Hawkins test. There were no deformities, hematomas, or peripheral neurovascular disorders.

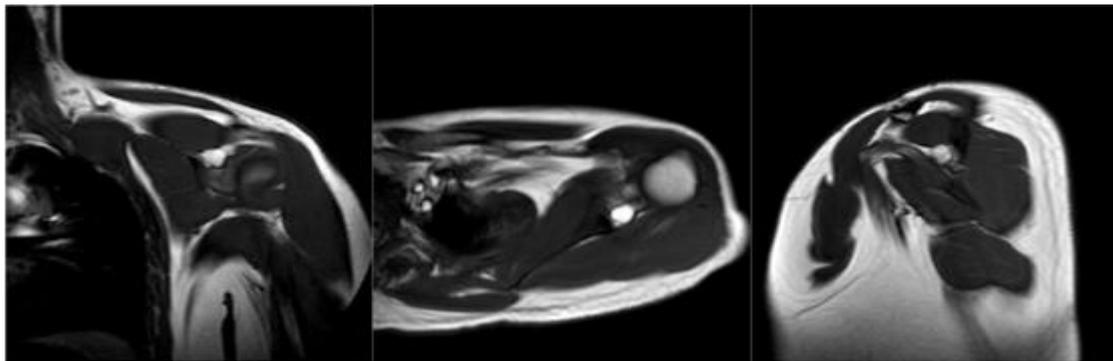


Figure 1. Magnetic resonance imaging picture showing paralabral cyst under the supraspinatus muscle.

MRI examination revealed supraspinatus tendinopathy, a  $2.6 \times 1.4$  cm paralabral cyst with cystic characteristics under the supraspinatus muscle, and subacromial bursitis, as shown in **Figure 1**. Post-ORIF internal fixation of the lateral clavicle and type I acromion was also found. This combination of findings led to the diagnosis of paralabral cyst, SLAP lesion, and subacromial impingement syndrome. The patient was scheduled for a left shoulder arthroscopy procedure for exploration and definitive management.

Before surgery, clinical examination revealed pain and restriction during shoulder elevation, which was confirmed by the limited range of motion (ROM) demonstrated by the patient during active

forward flexion, as shown in **Figure 2**. These findings were consistent with mechanical impingement and functional impairment requiring further investigation and management.



Figure 2. Preoperative active shoulder forward flexion performed by the patient

The procedure was performed in the lateral decubitus position, with arm traction to optimize visibility of the glenohumeral and subacromial spaces as shown in **Figure 3**. During arthroscopy, a paralabral cyst protruding above the superior labrum was found as well as a type II SLAP lesion characterized by avulsion of the labrum attachment from the glenoid without a

longitudinal tear gap, as shown in **Figure 4**. Treatment included cyst excision, SLAP repair using an absorbable anchor, and subacromial decompression. There were no neurovascular or iatrogenic complications. On the first postoperative day, pain was controlled and there were no neurologic complaints.



**Figure 3. (A) Anatomical landmark markings for shoulder arthroscopy orientation. (B) Lateral decubitus position with arm traction, commonly used as the standard setup for shoulder arthroscopic procedures.**



**Figure 4. Intraoperative arthroscopic findings. (A) Subacromial decompression procedure (B) A paralabral cyst located superior to the superior labrum and type II SLAP lesion, characterized by detachment of the superior labrum from the glenoid rim without a longitudinal tear. (C) Labral repair using suture anchor technique.**

Rehabilitation began with active mobilization of the distal segment and passive shoulder ROM, followed by wall-slide exercises in the second week to promote active elevation with scapular stabilization. One-month evaluation showed significant improvement in active ROM, disappearance of pain during overhead activities, and functional ability approaching the contralateral side. There were no residual deficits or wound complications.

## DISCUSSION

Labral lesions of the shoulder can vary from segmental involvement to multiple injuries spanning multiple compartments. The term triple labral lesion classically refers to a combination of anterior (2-6 o'clock), posterior (6-10 o'clock) and superior (2-10 o'clock) labrum injuries, with the criteria of at least two-thirds involvement of each area. However, a purely anatomical approach often does not reflect the true clinical

complexity. In practice, the correlation between the patient's symptoms and arthroscopic findings is more decisive, especially in cases with typical complaints but anatomical involvement that does not meet the formal limit. Therefore, the diagnosis in this case was based on the pattern of clinical complaints and intraoperative visual evidence, rather than a rigid zonal distribution.<sup>5</sup>

Type II SLAP lesions are the most common form of superior labrum injury, characterized by detachment of the labrum and anchorage of the biceps tendon from the glenoid, which can lead to chronic pain and functional impairment, especially in individuals with a history of trauma or repetitive stress to the shoulder.<sup>6</sup> In this case, the patient had residual pain post-ORIF of the clavicle, with MRI showing a superior labrum lesion accompanied by supraspinatus tendinopathy and subacromial bursitis—a combination that often aggravates symptoms due to biomechanical disturbances and secondary inflammation. Initial interventions are conservative, but if complaints persist, arthroscopic measures such as SLAP repair or tenodesis may be considered.<sup>7,8</sup> On arthroscopy, superior labrum fraying, supraspinatus tendon thickening, and subacromial bursa hyperemia were found, corroborating the multifactorial hypothesis of pain. A systematic review by Weick et al. (2022) reported a functional success rate of approximately two-thirds, emphasizing the importance of an individualized approach especially when labral lesions occur in conjunction with other soft tissue pathologies, as seen in this case.<sup>6</sup>

Paralabral cysts are an uncommon complication of labrum tears, including SLAP lesions, and can cause neurologic symptoms due to compression of the suprascapular nerve, particularly in the spinoglenoid notch area. The mechanism of cyst formation is thought to be related to synovial fluid leakage through incompletely healed capsulolabral defects, creating a one-way valve effect and causing fluid

accumulation in the tissues surrounding the labrum.<sup>9,10</sup> The relatively sheltered yet narrow anatomical position of the spinoglenoid notch, without direct muscular cushioning, makes it a vulnerable location for cyst compressions, despite its small size. In a case report by Wee & Wu (2018), a paralabral cyst measuring only 24 mm in size successfully caused suprascapular neuropathy manifested by shoulder pain, infraspinatus atrophy, and motor potential disturbances on EMG, and symptoms improved after ultrasound-guided aspiration.<sup>9</sup> Shim & Li's study (2023) also emphasized that spinoglenoid cysts are the most frequent cause of suprascapular nerve compression in young active athletes, particularly those who perform repetitive pushing movements such as push-ups or bench presses, and that this compression is often missed until there is external rotation weakness or muscle atrophy.<sup>10</sup> Clinically, suprascapular neuropathy is characterized by chronic shoulder pain, especially on external rotation or elevation, with possible decreased strength of the supraspinatus and/or infraspinatus muscles depending on the site of compression. MRI is the primary modality for diagnosis, although ultrasound is also useful in evaluation and aspiration therapy. In this case, the finding of fraying of the superior labrum accompanied by thickening of the supraspinatus tendon and persistent pain post-ORIF raised the suspicion of nerve irritation or chronic pressure disorder. Given that paralabral cysts are almost always associated with labrum tears, their presence should be suspected as an additional pathophysiologic component aggravating symptoms, especially in patients who have high functional activity and have not responded optimally to conservative therapy.<sup>11</sup>

The chronic shoulder pain experienced by patients post-ORIF of the clavicle, with arthroscopic findings of supraspinatus tendon thickening and hyperemia of the subacromial bursa, points to a typical picture of dynamic subacromial impingement. This mechanism is

aggravated by increased intraarticular pressure due to labrum lesions or paralabral cyst remnants, as well as rotator cuff and scapular muscle dysfunction that disrupts the scapulohumeral rhythm. Support for this mechanism was seen in a case report by Wee and Wu (2018), who described a 42-year-old man with atraumatic shoulder pain due to a superoposterior labral tear and a large paralabral cyst causing suprascapular nerve impingement. Although there was no notable motor weakness, significant pain was present due to structural compression, and symptoms improved after ultrasonographic aspiration of the cyst without surgical intervention. This suggests that mild but persistent compression can trigger impingement through pressure changes and mechanical irritation. Furthermore, a meta-analysis by Steuri et al. (2017) confirmed that scapular muscle dysfunction and rotator cuff imbalance are the main factors for subacromial space narrowing, with therapeutic exercise having a significant effect on pain and function (SMD -0.94; 95% CI -1.69 to -0.19).<sup>12</sup> These results are reinforced by the findings of Nazari et al. (2020), who reported that scapular dysfunction significantly increased the risk of shoulder impingement (OR 2.15; 95% CI 1.16-3.96).<sup>13</sup> Therefore, in this case, the rehabilitative approach was directed at reducing the chronic mechanical load as well as correcting the muscle dysfunction as part of the ongoing management of the impingement.

One of the rehabilitative approaches applied in this case was wall slide exercise, which aims to selectively activate the serratus anterior and restore scapular stability. This exercise was shown to increase upward rotation of the scapula and decrease compensatory activity of the upper trapezius muscle, which is often dominant in patients with impingement. The study by Kim et al. (2016) showed that wall slides with visual feedback resulted in significantly increased serratus anterior activation and decreased upper trapezius activity ( $p < 0.05$ ), supporting the role of this exercise in the correction of

scapular dysfunction.<sup>14</sup> Furthermore, a quasi-experimental study by Sneha et al. (2025) in 60 patients with scapular dysfunction found that a scapular stabilization exercise program significantly corrected scapular position and improved functional performance, with a statistically significant decrease in SPADI scores ( $p < 0.001$ ).<sup>15</sup> These findings reinforce the biomechanical basis of wall slide selection in this case, which aims to restore neuromuscular control of the scapula, reduce subacromial pressure, and prevent the progression of impingement to chronic dysfunction.

## CONCLUSION

This case illustrates a rare triple shoulder pathology, a combination of paralabral cyst, SLAP lesion, and subacromial impingement that occurred post clavicle ORIF. These three conditions mutually contributed to the biomechanical dysfunction of the shoulder and the patient's chronic pain complaints. Thorough evaluation through MRI and arthroscopy was key in identifying the source of the problem, while management focused on decompression of the irritated tissue and scapular rehabilitation to address the accompanying neuromuscular dysfunction. This multimodal approach demonstrates the importance of understanding the interactions between shoulder structures in managing chronic post-traumatic pain.

## Declaration by Authors

**Ethical Approval:** Not applicable

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**Conflict of Interest:** No conflicts of interest declared.

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