
Rare Case of Symptomatic Acromion Pseudoarthrosis Treated with ORIF: A Case Report and Literature Review

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Abstract

Acromion pseudoarthrosis is an exceedingly rare condition, most often arising as a complication of inadequately healed acromial fractures or following surgical procedures involving the scapula. The resulting nonunion can lead to persistent shoulder pain, impaired range of motion, and functional limitations that may mimic more common shoulder pathologies, often delaying diagnosis. We present a case of symptomatic acromion pseudoarthrosis in a 46-year-old male, highlighting the clinical presentation, imaging findings, surgical management, and postoperative outcome. This report underscores the importance of maintaining a high index of suspicion for acromion nonunion in patients with chronic shoulder pain after trauma. Furthermore, it reviews the available literature and discusses the challenges in diagnosis and treatment of this uncommon but clinically significant condition.

Introduction

Fractures of the acromion process are uncommon, accounting for less than 10% of scapular fractures and less than 1% of all fractures [1]. When they occur, most acromial fractures heal uneventfully with conservative management or surgical fixation, depending on the degree of displacement and associated injuries [1]. However, in rare cases, failure of union results in pseudoarthrosis of the acromion [1,2]. This condition has been sparsely described in the literature, with limited guidance on optimal management.

Acromion pseudoarthrosis can present with a spectrum of symptoms ranging from vague shoulder discomfort to significant mechanical pain, impingement, and loss of function [3]. Diagnosis may be challenging, as the clinical features can overlap with rotator cuff pathology, acromioclavicular joint disease, or chronic impingement syndromes [3]. Radiographic evaluation, supplemented with computed tomography or magnetic resonance imaging, plays a crucial role in identifying the nonunion and ruling out differential diagnoses [1,3].

Given its rarity, no consensus exists on the best course of treatment. Options range from continued conservative treatment in asymptomatic patients to surgical fixation, comprising bone grafting and fragment fixation, or even partial excision in symptomatic cases [4]. Reporting individual cases contributes valuable insights to the collective understanding of this unusual condition. In this article, we describe a case of symptomatic acromion pseudoarthrosis, detailing the clinical features, imaging, surgical management, and outcome, and we contextualize it within the available literature.

Case Presentation

A 46-year-old male presented with a six-month history of persistent left shoulder pain. His past medical history was notable for a motor vehicle accident resulting in fractures of the left iliac ala and the proximal phalanges of the first, second, and third rays of the left foot. All prior injuries had been managed conservatively, with satisfactory functional recovery.

On examination, there was marked tenderness over the acromion and pain-limited range of motion of the left shoulder. No evidence of rotator cuff weakness, instability, or neurovascular compromise was identified. Standard shoulder radiographs demonstrated a fracture of the acromion (Figure 1-4). Initial management included a course of physiotherapy, which did not result in symptomatic improvement.

Given the persistence of pain, a computed tomography (CT) scan was obtained, confirming a pseudoarthrosis of the acromion. After multidisciplinary discussion and patient counseling, surgical intervention was recommended. The patient underwent open reduction and internal fixation using a one-third tubular plate and interfragmentary screws. Postoperatively, he followed a structured rehabilitation program. At follow-up, the patient reported complete resolution of pain with restoration of functional shoulder motion.

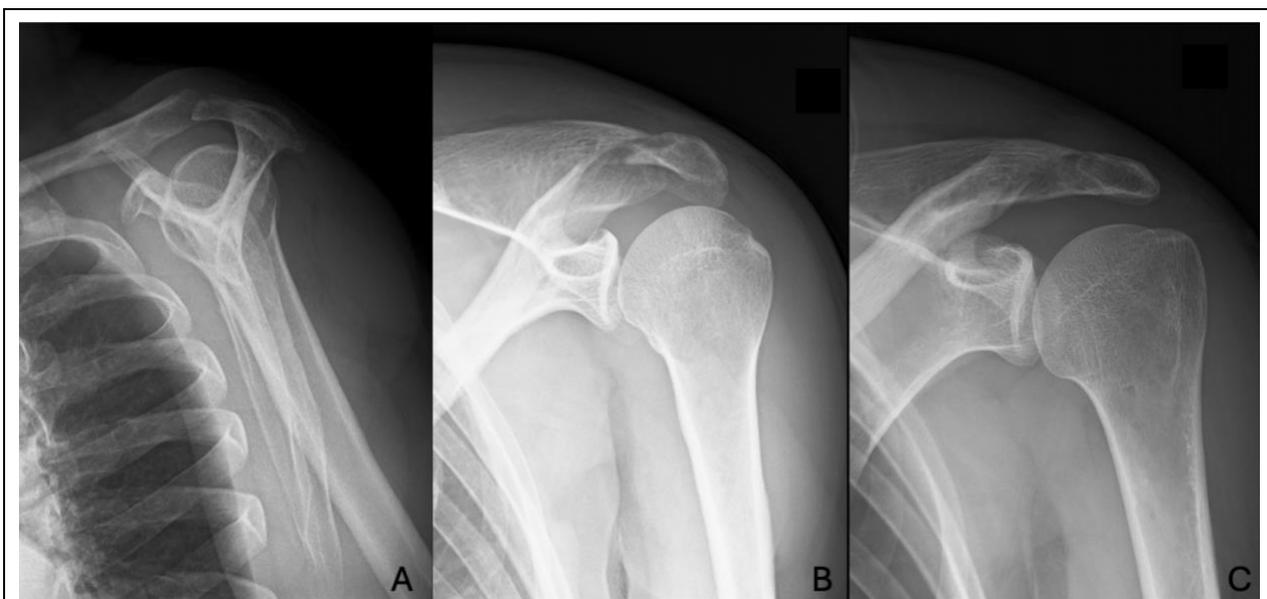


Figure 1: Preoperative plain radiograph of the left shoulder demonstrating acromial pseudoarthrosis. The patient presented with a six-month history of progressive left shoulder pain. Scapular Y (A), anteroposterior (B) and true anteroposterior (C) views show a nonunion of the acromion, consistent with acromial pseudoarthrosis.

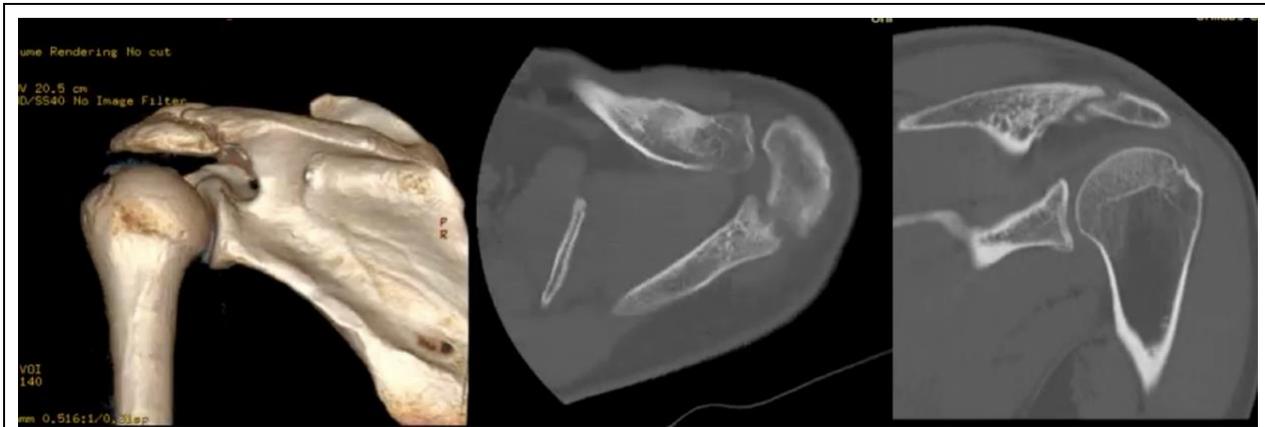


Figure 2: Preoperative computed tomography of the left shoulder demonstrating acromial pseudoarthrosis. Axial (B) and coronal (C) CT images show a nonunion of the acromion with a well-defined pseudoarthrosis. Three-dimensional reconstructed CT image (A) further delineates the acromial nonunion and spatial relationship of the fragments.

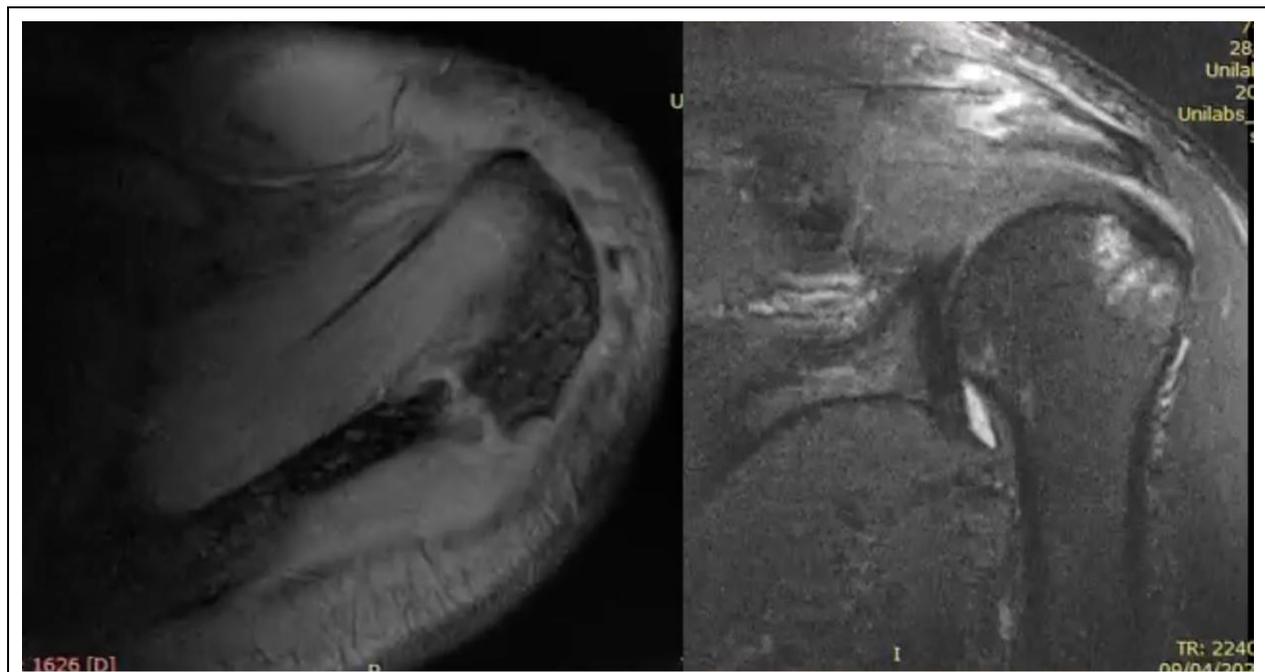


Figure 3: Preoperative magnetic resonance imaging of the left shoulder demonstrating acromial pseudoarthrosis. Axial T2-weighted image (A) and coronal STIR image (B) demonstrate a nonunion of the acromion with associated increased signal intensity at the nonunion site, consistent with acromial pseudoarthrosis.

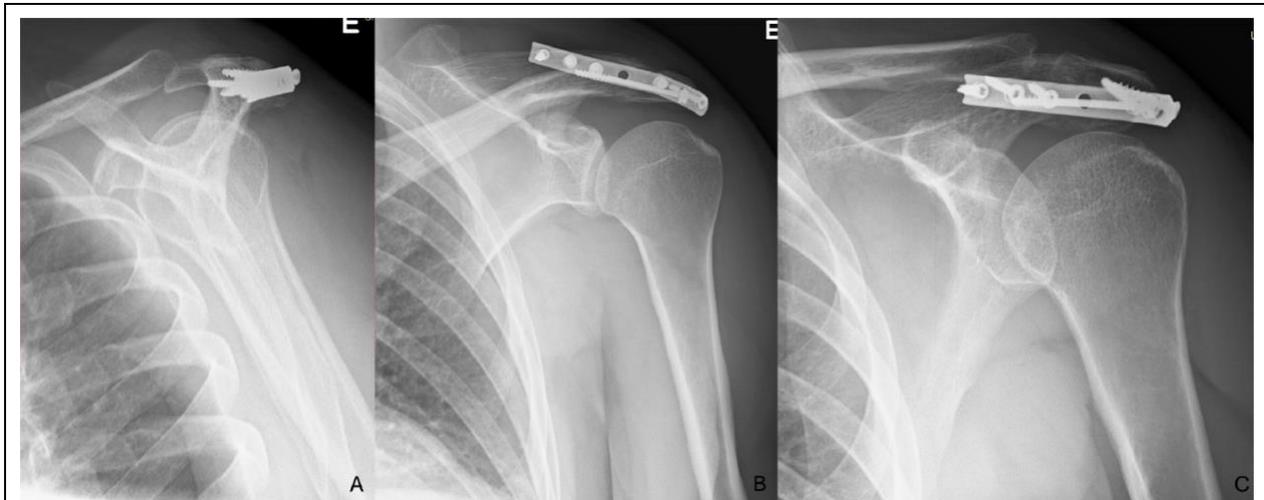


Figure 4: Postoperative plain radiographs of the left shoulder following surgical fixation of acromial pseudoarthrosis. Scapular Y (A), anteroposterior (B) and true anteroposterior (C) views demonstrate internal fixation of the acromion.

Discussion

Fractures of the acromion process are uncommon, accounting for less than 10% of scapular fractures and less than 1% of all fractures [1]. Although most acute acromial fractures can be treated nonoperatively, established nonunion is a recognized source of persistent pain and disability. Nonunion is frequently underrecognized, in part because symptoms overlap with the symptoms of other more prevalent shoulder pathologies. Nevertheless, this type of injury can severely impact shoulder function. Mechanically, persistent micromotion at the fracture site may compromise the deltoid origin and alter the acromiohumeral relationship, producing secondary impingement and dysfunctional deltoid tensioning [4]. This mechanism may explain why established pseudoarthroses often remain symptomatic despite appropriate nonoperative measures [4].

Relevant literature supports surgical treatment in cases of acute acromion fractures with reduction of the subacromial space, symptomatic stress fractures and painful non-unions [1]. Due to the rarity of this fracture, most surgical considerations come from case reports. Various types of internal fixation have been employed, most frequently, plate with or without interfragment screw, tension band wiring, or Kirschner wires [1]. Some suggest the use of plates in proximal fractures, affecting the acromial base and spine, while tension band wiring might be better suited for distal fractures [1]. Use of these two different fixations is mainly justified by the acromion configuration. Additionally, fragment excision is an option and may be considered for smaller fragments, distal tip nonunions or in low-demand patients, where arthroscopic or open excision can relieve symptoms due to impingement resolution; however, the risk of lesion to the deltoid origin must be equated [1,6,7]. Select reports describe successful excision in painful, nonunited stress fractures after RSA; however, for base/body nonunions in native shoulders, fixation generally provides more predictable restoration of shoulder mechanics [1,7,8].

In conclusion, across small series and case reports, operative management of acromion nonunion demonstrates high union rates and improvement in pain and function; failures typically relate to inadequate fixation or bone quality and may be salvaged with revision and grafting. Recent evidence on surgically treated acromion fractures also suggests lower nonunion rates and improved motion/pain with fixation compared with historical nonoperative cohorts. Our patient's pain resolution and functional recovery following ORIF is consistent with these reports.

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