

Case Report

HAGL Lesion Occurring After Successful Arthroscopic Bankart Repair

Gert Schippinger, M.D., Peter S. Vasiu, D.O., Florian Fankhauser M.D.,
and Hans G. Clement M.D.

Abstract: Recurrent traumatic anterior shoulder instability following surgical repair may be associated with implant failure and an array of capsulolabral pathology including separation of the labrum (Bankart lesion), humeral avulsion of the glenohumeral ligaments (HAGL lesion), and capsular rupture. We detail a previously unreported case of a HAGL lesion occurring in a shoulder with an intact arthroscopic Bankart repair following an additional traumatic event. Anatomic repair of this subsequent injury resulted in an excellent outcome. The patient returned to his high-demand ski racing activities without any shoulder limitation. **Key Words:** Shoulder—HAGL lesion—Bankart—Instability.

Multiple pathologic lesions may result from traumatic anterior glenohumeral instability.¹ Capsulolabral and ligamentous injuries attributable to this trauma often create an environment of persistent instability. This pathology includes detachment of the glenoid labrum (Bankart lesion),² humeral avulsion of the glenohumeral ligaments (HAGL lesion),³ and capsular rupture.⁴ These entities may be seen either in isolation or, more rarely, in combination with one another.^{5,6}

Following surgical repair, the problem may recur due to inadequate technique, implant failure, or an additional injury.⁷ However, when this does occur, there is usually disruption of the previous repair or a different direction of instability. No study has reported a repeat anterior instability with a new pathologic

mechanism and preservation of a previous arthroscopic surgical repair. We describe a case of a HAGL lesion in a shoulder with an intact arthroscopic Bankart repair following an additional traumatic event.

CASE REPORT

A 17-year-old male Junior National ski racer sustained a traumatic anterior-inferior dislocation of the right dominant shoulder in a fall during a training run. This was reduced and no other osseous abnormalities were noted on radiographic examination. Three days later, the patient underwent arthroscopic surgery for definitive treatment. Examination under anesthesia confirmed unidirectional anterior shoulder instability. Arthroscopy revealed a significant detachment of the glenoid labrum. This was manifested as a type 4 superior labrum from anterior to posterior (SLAP) lesion with partial detachment and split in the biceps origin, a large Bankart lesion, and extension of the labral separation posteriorly to the 9 o'clock position on the glenoid. The more inferior and posterior portion of the labrum remained intact (Fig 1). Care was taken to rule out any additional etiology for instability including capsular laxity and HAGL lesion.

From the Department of Traumatology, Medical School of Graz, Austria (G.S., F.F., H.G.C.); and Grand Rapids Orthopedics, Grand Rapids, Michigan, (P.S.V.), U.S.A.

Address correspondence and reprint requests to Gert Schippinger, M.D., Department of Traumatology, Auenbruggerplatz 7a, A 8036 Graz, Austria.

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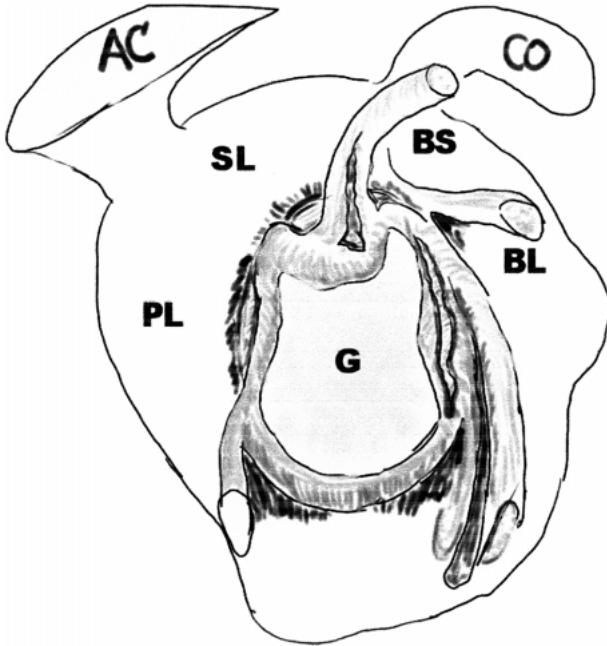


FIGURE 1. Primary injury pattern (G, glenoid; BL, Bankart lesion; BS, biceps split; PL, posterior labral lesion; SL, SLAP lesion).

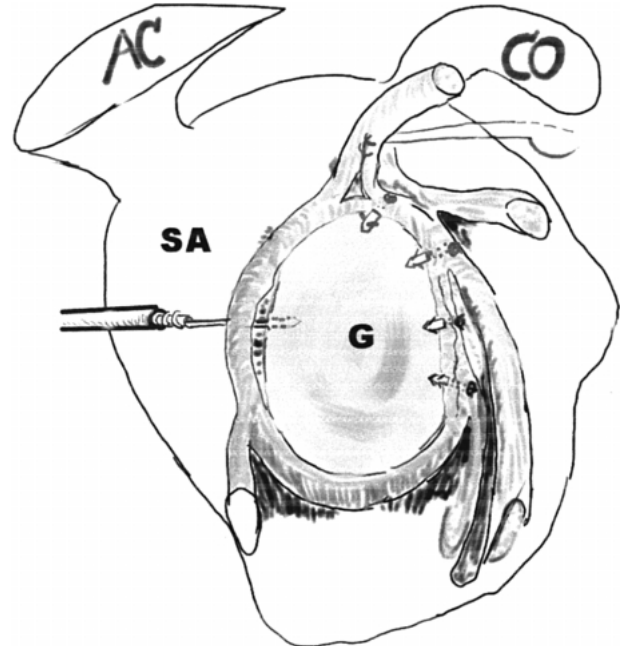


FIGURE 2. Primary arthroscopic repair (G, glenoid; SA suture anchor).

The pathology was arthroscopically repaired using a total of 5 titanium anchors (GII Anchor; Mitek, Westwood, MA). These were placed at the 12 (supraglenoid tubercle) 2, 3, 5, and 9 o'clock positions. In addition, the split in the base of the biceps tendon was secured side-to-side with an arthroscopic suture technique (Fig 2).

Postoperatively, the patient was restricted to sling use for 2 weeks. Passive and active range of motion were then initiated with avoidance of extreme flexion (beyond 120°) and external rotation (beyond neutral). At 5 weeks postoperatively, strengthening exercises commenced. Gentle skiing was allowed at 3 months and competitive racing at 6 months. The patient resumed his preinjury schedule without limitation.

Approximately 1 year after the original injury, an additional traumatic anterior-inferior dislocation of the same shoulder occurred after a violent fall and roll into a retaining snow fence during competition. This was reduced on location by a team physician and the patient underwent repeat arthroscopy 2 days later.

Examination under anesthesia again confirmed unidirectional anterior shoulder instability. Surprisingly, arthroscopy revealed all of the previous anchors and glenoid labral repair to be intact. However, there was a HAGL lesion in the inferior pouch of the shoulder where subscapularis tendon was readily visualized through a defect in the capsuloligamentous complex

(Fig 3). Because of our relative inexperience with this lesion and concern over proper placement and tensioning of the repair, an arthrotomy was performed. The avulsion was repaired by a superolateral shift and attachment to the humeral neck with 3 bioabsorbable suture anchors (Panalok Anchor; Mitek) with the shoulder maintained in 50° of flexion and 30° of

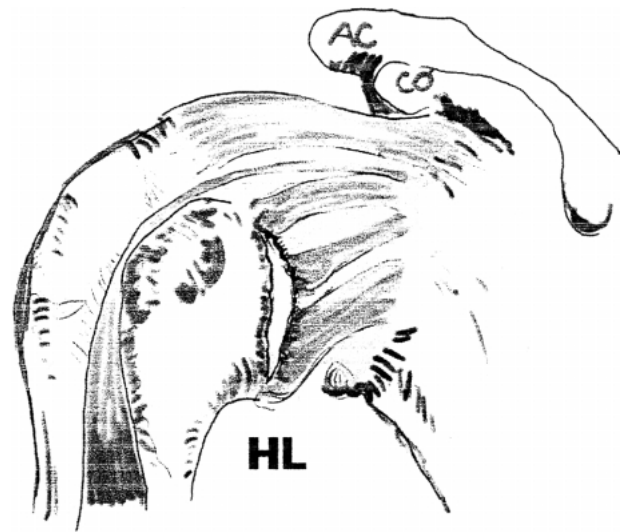


FIGURE 3. Secondary injury pattern (HL, HAGL lesion).

external rotation (Fig 4). Postoperatively, a regimen of therapy and return to activities duplicating that detailed previously were observed. Currently, the patient is 1 year out from the second procedure. He has completed numerous training runs without limitation and is preparing for the upcoming international racing season.

DISCUSSION

Several causes of recurrent anterior instability of the glenohumeral joint have been detailed in the literature. Following trauma, these include the more common Bankart lesion,^{1,8} capsular pathology,⁴ and the recently described HAGL lesion.^{3,6,9,10} With increasing frequency, the published reports have documented that these entities may occur in combination with one another.^{5,6,9} Repair of only 1 portion of this spectrum of injury provides suboptimal results as persistent capsular laxity leads to failure of stabilization.¹¹

It is rare to encounter a new and distinct form of this pathology following additional trauma with preservation of a previous surgical repair.^{3,7} Our case repre-

sents an initial report of a HAGL lesion occurring with an intact arthroscopic Bankart repair. One could speculate that this lesion was also present after the initial injury. However, it was not seen during careful arthroscopic examination at the index procedure. In addition, the patient returned to his high-demand ski racing activities without any shoulder limitation.

Several factors may provide a rationale for this injury pattern. With the significant number of suture anchors placed during primary repair, strength in stability of the labral side of the joint was likely increased. In addition, the subsequent racing injury was high speed in nature. There has been some suggestion in reports that a more violent mechanism of injury preferentially predisposes to a HAGL lesion.^{3,9} These circumstances in concert may have led to this patient's unusual pathology. Regardless, an excellent functional outcome was achieved.

This case reiterates the importance of proper identification of the HAGL lesion. Whether a primary lesion as noted by previous authors,^{3,6,9} or following secondary trauma as seen in this patient, with proper anatomic repair, shoulder stability and an excellent result may be anticipated.

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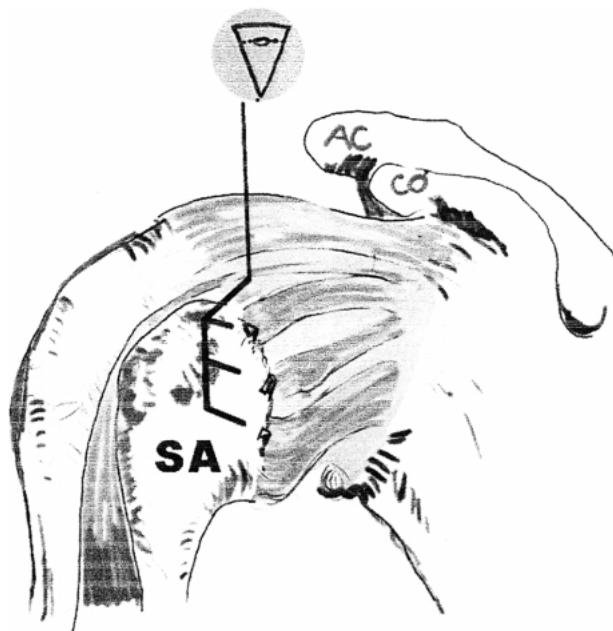


FIGURE 4. Secondary arthroscopic repair (SA, suture anchor).