

Effect of Physical Therapy Rehabilitation in Individuals with Hill Sach Lesion: A Case Report

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Vol 1, Issue 2: Page no. 76-81

Received: 20 Sept 2025, Accepted: 30 Sept 2025, Published: 30 Oct 2025

Abstract

An impaction fracture of the lateral posterosuperior section of the humeral head against the glenoid cavity is known as a Hill-Sachs lesion (HSL), and it can be seen on medial rotation radiography. When the shoulder joint is anteriorly unstable, this lesion develops. When the shoulder is in its most vulnerable position for anterior dislocation, these lesions would be positioned parallel to the margin of the glenoid cavity. Axial neck discomfort, cervical radiculopathy, and myelopathy are all symptoms of cervical spondylosis, which is a persistent degenerative lesion of the cervical intervertebral discs. A 64 year old male was admitted to hospital with the complain of pain in his right shoulder which was sudden in onset & was so severe that he was facing difficulty in overhead abduction. Physiotherapy regime was initiated this include helping the patient restore their strength and mobility while also enabling them to function independently.

Keywords: Hill Sach lesion, Physiotherapy, Physiotherapy intervention.

1. Introduction:

The shoulder joint, which consists of the scapulothoracic and glenohumeral joints, has the most range of motion of any joint in the human body, hence maintaining its stability is crucial to its proper operation. As a naturally unstable ball-and-socket joint, the glenohumeral joint is prone to a number of ailments, particularly dislocation. Laxity, subluxation, and dislocation are only a few of the processes and clinical manifestations referred to as shoulder instability(1).

Hill-Sachs lesions are humeral head impression fractures brought on by the anterior rim of the glenoid impinging on the posterolateral aspect of an anteriorly displaced humeral head(2). Hill-Sachs lesions occur more frequently than previously believed. The eroded articular cartilage, the nonarticulating bare area of the humeral head, must be separated from this lesion, which develops on the articular surface posterior to the humeral greater tuberosity. Hill-Sachs lesions can affect the subchondral bone or just the articular cartilage(1).

These lesions are oriented at roughly 07:58+/-00:48 in the axial plane, or at an angle of 239.1+/-24.3 Degrees from the noon position. Compared to CT, radiography may be less accurate at detecting the existence of bone lesions despite being less expensive and simpler to get. For measuring glenoid and Hill-Sachs bone loss, radiographic techniques have been proposed employing both standard views (true AP, axillary) and specialised views (Bernageau profile)(3).

Every component of the cervical spine is affected by a range of gradually progressing degenerative changes known as "cervical spondylosis" (i.e., intervertebral discs, facet joints, joints of Luschka, liga-



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mentaflava, and laminae). It is a common symptom of ageing that most people start experiencing after their fifth decade of life(4). In cervical spondylosis, osteophyte production and involvement of nearby soft tissue structures are the first signs of degenerative alterations in the intervertebral discs. However, the line separating normal ageing from disease is difficult to draw because many people over 30 exhibit comparable anomalies on plain radiographs of the cervical spine(5). The clinical examination, spinal angiography, vertebral artery angiography, X-ray, computed tomography (CT), and magnetic resonance imaging are currently the clinical diagnostic techniques of CS technology (MRI)(6).

2. Patient Presentation:

Patient was alright one and half month back patient gives history of slip and fall at his home since then he developed pain in the right shoulder which was sudden in onset and severe that patient was having difficulty in doing overhead activities. The pain was aggravated by shoulder movement and relieved by rest and medications. For this pain the patient was taken to local doctor where he was advised medication and referred him to AVBRH hospital. Patient visited OPD on 25/05/2025 where he was assessed and MRI was advised, and patient was operated on 20/06/2025.

On observation the patient was in sitting with right shoulder slightly flexed with elbow in flexion and bandage present over right shoulder and with moderate forward head posture. On palpation grade II tenderness was present at the anterior and superior aspect of the right shoulder. With little rise in the temperature as compared to the left shoulder. On examination the patient was mesomorphic on built patient was vitally stable. The range of motion assessment for the right shoulder and the cervical region are mentioned in the table 1 below.

Joint	Movement	Right	Left
Shoulder	Flexion	0-20*	0-180*
	Extension	0-15*	0-30*
	Abduction	0-15*	0-90*
Cervical	Flexion	0-45*	
	Extension	0-30*	

Static strength for the right shoulder taken which is mentioned in the table 2 below

Joint	Movement	Right
Shoulder	Flexion	0 – 20*
	Extension	0 – 10*
	Abduction	0 -10*
Elbow	Flexion	0 - 120*
Wrist	Flexion	0-80*
	Extension	0 – 85*

3. Timeline

Patient had a fall on 10/04/2025, patient reported to AVBRH OPD on 25/05/2025, MRI was 27/05/2025, patient was operated for the same on 20/06/2022, physiotherapy was started on 22/06/2025 and follow up was taken on 28/08/2025

4. Diagnostic Assessment

X-ray and MRI was done

5. Management

Intervention	Exercises	Dosage	Rationale
Acute / Protection Phase (0 to 3 week)	Pendular (Codman's) exercises	2–3 sets × 10–15 reps, 2–3 times/day	Gentle pain-free movement to prevent stiffness and maintain joint lubrication.
	Active-Assisted Shoulder Flexion (using stick / pulleys)	10 reps × 3 sets, within pain-free range	Assists movement while protecting healing tissues; prevents adhesive capsulitis.
	Isometric exercises (Deltoid, Rotator cuff, Biceps, Triceps)	5–10 sec hold × 10 reps × 3/day	Maintains muscle activation without stressing repair site.
	Scapular setting / retraction	10 reps × 3 sets	Promotes scapulo-humeral rhythm and shoulder stability.
Subacute / Controlled Motion Phase (3 – 6 Weeks)	Active-Assisted → Active ROM (Flexion, Abduction, ER/IR)	10–15 reps × 3 sets, 2×/day, within pain-free range	Gradual increase in mobility, joint nutrition, and soft tissue extensibility.
	Muscle Energy Technique (MET) for Shoulder External Rotators	3–5 repetitions, 5 sec contraction, gentle effort	Facilitates muscle relaxation, reduces tightness, improves mobility.
	Scapular mobility and control exercises (protraction, retraction, elevation, depression)	2–3 sets × 10 reps	Restores normal scapular kinematics.
	Wand / Pulleys exercises	10 reps × 3 sets, once daily	Encourages symmetry and coordination during elevation.
Remodeling / Strengthening Phase (6–12 weeks)	Progressive resistive exercises (TheraBand / weights)	2–3 sets × 10–15 reps, 3–4×/week	Increases muscle strength and joint stability.
	Closed kinetic chain stability drills (wall push-ups, weight shifts)	2 sets × 10 reps	Enhances dynamic shoulder control and co-contraction.
	Proprioceptive training (ball on wall, wobble board for upper limb)	2–3 min × 2 sets	Restores joint position sense and neuromuscular control.
	Stretching of pectoralis major/minor, posterior capsule	Hold 20–30 sec × 3–5 reps	Improves flexibility and reduces anterior tightness.

6. Follow Up

Follow up was taken in 28/08/2025

Joint	Movement	Right
Shoulder	Flexion	0 - 100*
	Extension	0-25
	Abduction	0-30*
Elbow	Flexion	0-140*
Wrist	Flexion	0-80*
	Extension	0 – 85*

7. Discussion:

Two radiologists, Harold Arthur Hill and Maurice David Sachs, wrote a paper in 1940 in which they described a lesion using radiography and gave it the name Hill-Sachs lesion (HSL). (maio) A bone deficiency of the humeral head known as a Hill-Sachs lesion is frequently connected to recurrent anterior shoulder instability. The Hill-Sachs lesion has actually been shown to be fairly prevalent; it is present in 67-93% of anterior dislocations and can occur in 100% of individuals with persistent anterior shoulder instability(7).

The term "cervical spondylosis" refers to a variety of gradually developing degenerative alterations that affect every part of the cervical spine (i.e., intervertebral discs, facet joints, joints of Luschka, ligamentaflava, and laminae). The majority of people begin to experience it after their fifth decade of life and it is a natural part of ageing(4).

The size of the lesion on the humeral head is the main factor affecting Hill-Sachs lesions. The conventional course of treatment, which involves immobilisation and physical therapy, can be carried out if the lesion takes up less than 20% of the humeral head. Orthopedic surgery was consulted, and they advised closed reduction in the ED with follow-up in an orthopaedic clinic. The author came to the conclusion that the presence of a Hill-Sachs lesion can occasionally make anterior SDs more difficult. Regular closure reduction, a shoulder sling, and orthopaedic follow-up are effective treatments for small lesions. Larger lesions might require more treatment. Long-term Hill-Sachs lesion problems may occur in some people(8). According to some experts, women (7%) are more prone than men to experience cervical spine pain. Haladaj, et.al in their study divided patient into two groups in which one group receive cervical axial traction using the Saunders device & other group receive analgesic application in acute state patients or biostimulation in patients with subacute and chronic conditions. Using laser therapy. Author in his study concluded that patients with cervical spondylosis, traction with the Saunders device and HILT showed analgesic efficacy and increased overall mobility and efficiency. Only in the initial period, that is, immediately following the procedures and in the medium-term follow-up, did the Saunders approach perform similarly to HILT. In long-term follow-up, HILT had a more effective therapeutic impact(9).

8. Conclusion

We concluded that physiotherapy rehabilitation played an important role in regaining the functionality of the patient and improved overall well being by reducing pain and improving ease in ADLs.

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