

— Abstract —

## Rotator Interval Lesion: Instability & Stiffness

Jeong-Hwan Oh, Jin-Young Park

*Shoulder, Elbow and Sports Service  
Department of Orthopaedic Surgery, Konkuk University School of Medicine Seoul, Korea*

Rotator interval should be as loose as possible, though not so loose as to break the shoulder mechanism. This region is a source of significant shoulder pathology resulting in patient discomfort and dysfunction. The clinical features fall into two categories. Rotator interval tightness is associated with impingement, contracture with adhesive capsulitis, and widening with anteroinferior, posterior or multidirectional instability. Coracoid impingement can cause damage to the structures of the rotator interval, Injury of the interval are associated with subscapularis tears as well as biceps tendinitis, fraying, subluxation, and dislocation. An understanding of the normal and pathologic anatomy can lead to successful diagnosis and treatment of lesions in the rotator interval.

**Key Words:** Rotator interval, Instability, Stiffness, Shoulder

ligament) . 가 .  
(rotator interval) 2 , 4  
(coracohumeral ligament), 14)  
(superior glenohumeral

:

1

Tel: (02) 2049-6360, Fax: (02) 458-1134, E-Mail: drpark@chol.com

가 가 17)

가

Gadolinium 가

15

3,5)

hyalinization, fibrinoid

degeneration

6)

Bunker 2)

4)

Dupuytren

10)

Dupuytren Hertel 11)

16)

가

28)

가 가

Omari 22) 75

66

32

가 20)

25

41 가

13)

27)

2가 12,21) 1

가 1-3,11,16,22,23,27) 2

Bankart lesion, Hill-Sachs

7-9,15,19,24,26,28,30,32)

7), Gartsman 9)

32) Field

29)

가 25)

Bankart

18)

8)

Karas 15)

30%, Cole<sup>4)</sup> 가  
 40%가  
 (sulcus sign)  
 Wolf Lemak<sup>21)</sup> radiofrequency  
 1  
 가  
 가

## REFERENCES

- 1) **Bennett, W. F.:** Addressing glenohumeral stiffness while treating the painful and stiff shoulder arthroscopically. *Arthroscopy*, 16(2): 142-150, 2000.
- 2) **Bunker, T. D., and Anthony, P. P.:** The pathology of frozen shoulder. A Dupuytren-like disease. *J Bone Joint Surg Br*, 77(5): 677-683, 1995.
- 3) **Carrillon, Y.; Noel, E.; Fantino, O.; Perrin-**

- Fayolle, O.; and Tran-Minh, V. A.:** Magnetic resonance imaging findings in idiopathic adhesive capsulitis of the shoulder. *Rev Rhum Engl Ed*, 66(4): 201-206, 1999.
- 4) **Cole, B. J.; Rodeo, S. A.; O'Brien, S. J.; Altchek, D.; Lee, D.; DiCarlo, E. F.; and Potter, H.:** The anatomy and histology of the rotator interval capsule of the shoulder. *Clin Orthop*, (390): 129-137, 2001.
- 5) **Connell, D.; Padmanabhan, R.; and Buchbinder, R.:** Adhesive capsulitis: role of MR imaging in differential diagnosis. *Eur Radiol*, 12(8): 2100-2106, 2002.
- 6) **Fealy, S.; Rodeo, S. A.; Dicarlo, E. F.; and O'Brien, S. J.:** The developmental anatomy of the neonatal glenohumeral joint. *J Shoulder Elbow Surg*, 9(3): 217-222, 2000.
- 7) **Field, L. D.; Warren, R. F.; O'Brien, S. J.; Altchek, D. W.; and Wickiewicz, T. L.:** Isolated closure of rotator interval defects for shoulder instability. *Am J Sports Med*, 23(5): 557-563, 1995.
- 8) **Gartsman, G. M.; Roddey, T. S.; and Hammerman, S. M.:** Arthroscopic treatment of anterior-inferior glenohumeral instability. Two to five-year follow-up. *J Bone Joint Surg Am*, 82-A(7): 991-1003, 2000.
- 9) **Gartsman, G. M.; Taverna, E.; and Hammerman, S. M.:** Arthroscopic rotator interval repair in glenohumeral instability: description of an operative technique. *Arthroscopy*, 15(3): 330-332, 1999.
- 10) **Harryman, D. T., 2nd; Sidles, J. A.; Harris, S. L.; and Matsen, F. A., 3rd:** The role of the rotator interval capsule in passive motion and stability of the shoulder. *J Bone Joint Surg Am*, 74(1): 53-66, 1992.
- 11) **Hertel, R.:** [The frozen shoulder]. *Orthopade*, 29(10): 845-851, 2000.
- 12) **Ikeda, H.:** ["Rotator interval" lesion. Part 1: Clinical study]. *Nippon Seikeigeka Gakkai Zasshi*, 60(12): 1261-1273, 1986.
- 13) **Itoi, E.; Berglund, L. J.; Grabowski, J. J.; Naggar, L.; Morrey, B. F.; and An, K. N.:** Superior-inferior stability of the shoulder: role of the coracohumeral ligament and the rotator interval capsule. *Mayo Clin Proc*, 73(6): 508-515, 1998.
- 14) **Jost, B.; Koch, P. P.; and Gerber, C.:** Anatomy

- and functional aspects of the rotator interval. *J Shoulder Elbow Surg*, 9(4): 336-341, 2000.
- 15) **Karas, S. G.:** Arthroscopic rotator interval repair and anterior portal closure: an alternative technique. *Arthroscopy*, 18(4): 436-439, 2002.
  - 16) **Kilian, O.; Kriegsmann, J.; Berghauer, K.; Stahl, J. P.; Horas, U.; and Heerdegen, R.:** [The frozen shoulder. Arthroscopy, histological findings and transmission electron microscopy imaging]. *Chirurg*, 72(11): 1303-1308, 2001.
  - 17) **Kolts, I. et al.:** Macroscopical anatomy of the so-called "rotator interval". A cadaver study on 19 shoulder joints. *Ann Anat*, 184(1): 9-14, 2002.
  - 18) **Le Huec, J. C.; Schaefferbeke, T.; Moinard, M.; Kind, M.; Diard, F.; Dehais, J.; and Le Rebeller, A.:** Traumatic tear of the rotator interval. *J Shoulder Elbow Surg*, 5(1): 41-46, 1996.
  - 19) **Lyons, T. R.; Griffith, P. L.; Savoie, F. H., 3rd; and Field, L. D.:** Laser-assisted capsulorrhaphy for multidirectional instability of the shoulder. *Arthroscopy*, 17(1): 25-30, 2001.
  - 20) **Neer, C. S., 2nd; Satterlee, C. C.; Dalsey, R. M.; and Flatow, E. L.:** The anatomy and potential effects of contracture of the coracohumeral ligament. *Clin Orthop*, (280): 182-185, 1992.
  - 21) **Nobuhara, K., and Ikeda, H.:** Rotator interval lesion. *Clin Orthop*, (223): 44-50, 1987.
  - 22) **Omari, A., and Bunker, T. D.:** Open surgical release for frozen shoulder: surgical findings and results of the release. *J Shoulder Elbow Surg*, 10(4): 353-357, 2001.
  - 23) **Ozaki, J.; Nakagawa, Y.; Sakurai, G.; and Tamai, S.:** Recalcitrant chronic adhesive capsulitis of the shoulder. Role of contracture of the coracohumeral ligament and rotator interval in pathogenesis and treatment. *J Bone Joint Surg Am*, 71(10): 1511-1515, 1989.
  - 24) **Savoie, F. H., 3rd, and Field, L. D.:** Thermal versus suture treatment of symptomatic capsular laxity. *Clin Sports Med*, 19(1): 63-75, vi, 2000.
  - 25) **Seeger, L. L.; Lubowitz, J.; and Thomas, B. J.:** Case report 815: Tear of the rotator interval. *Skeletal Radiol*, 22(8): 615-617, 1993.
  - 26) **Selecky, M. T.; Tibone, J. E.; Yang, B. Y.; McMahon, P. J.; and Lee, T. Q.:** Glenohumeral joint translation after arthroscopic thermal capsuloplasty of the rotator interval. *J Shoulder Elbow Surg*, 12(2): 139-143, 2003.
  - 27) **Tetro, A. M.; Bauer, G.; Hollstien, S. B.; and Yamaguchi, K.:** Arthroscopic release of the rotator interval and coracohumeral ligament: An anatomic study in cadavers. *Arthroscopy*, 18(2): 145-150, 2002.
  - 28) **Van der Reis, W., and Wolf, E. M.:** Arthroscopic rotator cuff interval capsular closure. *Orthopedics*, 24(7): 657-661, 2001.
  - 29) **Werner, A.; Ilg, A.; Schmitz, H.; and Gohlke, F.:** [Tendinitis of the long head of biceps tendon associated with lesions of the "biceps reflection pulley"]. *Sportverletz Sportschaden*, 17(2): 75-79, 2003.
  - 30) **Wirth, M. A.; Groh, G. I.; and Rockwood, C. A., Jr.:** Capsulorrhaphy through an anterior approach for the treatment of atraumatic posterior or glenohumeral instability with multidirectional laxity of the shoulder. *J Bone Joint Surg Am*, 80(11): 1570-1578, 1998.
  - 31) **Wolf, R. S., and Lemak, L. J.:** Thermal capsulorrhaphy in the treatment of multidirectional instability of the shoulder. *J South Orthop Assoc*, 11(2): 102-109, 2002.
  - 32) **Zarins, B.; McMahon, M. S.; and Rowe, C. R.:** Diagnosis and treatment of traumatic anterior instability of the shoulder. *Clin Orthop*, (291): 75-84, 1993.