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## Editorial

### From 'Minor' to 'Major'



Shoulder lesion and its treatment have aroused numerous debates in the past decade. The comment, 'since the shoulder joint is not a weight-bearing joint and so many tendon lesions are of minor importance, the region is rarely exposed to surgical view' was reported in the British Medical Journal in 1976.<sup>1</sup> Undoubtedly, the understanding of shoulder pathology at that time cannot be compared with that in the present era, especially when the advances of magnetic resonance imaging and arthroscopy have brought more pathologies under our direction vision.

The term 'impingement' has long been associated with many different shoulder pathologies. In 1972, Neer<sup>2</sup> proposed that impingement was due to the anterior third of the acromion and the coracoacromial ligament and suggested that the surgery should be focused on those areas. The role of anteroinferior aspect of the acromion in impingement syndrome and excision of parts of the anteroinferior acromion has become a pivotal part of the surgical treatment of the syndrome. Although the reduction in the subacromial space correlated to the incidence of impingement syndrome is well established,<sup>3,4</sup> these observations do not define whether the reduction is a cause or consequence. Apart from the intrinsic tendinous factor, other extrinsic mechanisms influencing the subacromial space, such as alignment (thoracic kyphosis, glenoid orientation), glenohumeral and scapular kinematics (decreased glenohumeral internal rotation, scapular dyskinesis), muscle extensibility and sports-specific adaption factors, are all extensively studied to further evaluate the other possible etiologies of subacromial impingement.<sup>5</sup> More in depth discussion is certainly on the osseous contribution to the subacromial impingement as classified by Bigliani and Levine<sup>6</sup> in 1997 in which the increase likelihood of the pathology due to an abnormal acromion morphology. However, the concept was continuously challenged by different researchers in which osseous impingement by the acromion may not be a primary cause of shoulder impingement syndrome or rotator cuff tears and yet other anatomical or osseous factors including, three dimensional geometry of the region, the acromioclavicular joint and coracoacromial ligaments, should also be taken into consideration while examining the patient.<sup>7</sup> There is no doubt that the concept of subacromial impingement will continue to evolve as we develop a better understanding of the clinical results of our patients in the arthroscopic era.

In the 1990s, with the advent of more advanced imaging procedures such as anatomic, kinesiological, magnetic resonance imaging and arthroscopic data, another type of rotator cuff impingement was suggested as a result from compression of the posterior rotator cuff and the fibres of the posterior superior labrum between the

greater tuberosity and the posterior superior glenoid.<sup>8</sup> This internal impingement process, which was predominantly reported in active throwers, has been postulated as a result of a perpetuating cycle of subtle laxity of the glenohumeral capsule with increased humeral head translation. However, some authors had suggested that this proposed mechanism is not pathological, but rather a protective mechanism against further hyperexternal rotation of the shoulder.<sup>9</sup> Therefore, the exact pathogenesis is still not conclusively established.

Subcoracoid impingement is yet another pain source under extensive evaluation in the last 20 years, but the pathogenesis and related treatment of this condition has still not been explained clearly. The subcoracoid space was described as early as in 1909 by Goldthwait<sup>10</sup> and was further brought into awareness by Gerber<sup>11</sup> in 1985. Some authors suggested that the condition is due to a primary narrow coracohumeral distance with different threshold values defined as increased risk factor for subscapularis and anterosuperior rotator cuff tear; opposite theory stated that the stenosis is secondary to an anterosuperior translation of the humeral head towards the coracoid due to degenerative changes of the rotator cuff tendons.<sup>12</sup> Similar to the study of acromion morphology, the coracoid anatomy was studied quite in detail by different researchers; however, its exact relation to the patients' symptom is yet to be defined. Local data is presented by Wan et al<sup>13</sup> in this issue of our journal and hopefully could continue to arouse our awareness concerning this possible etiology as a source of shoulder pain.

Suprascapular nerve impingement or entrapment is also increasingly diagnosed. It was first described by Thompson and Kopell<sup>14</sup> in 1959. Various pathologies can contribute to the compression on the nerve, which include transverse scapular ligament anomalies, compression from adjacent ganglion, abnormal osseous morphology of the suprascapular notch, direct trauma or traction injury and massive rotator cuff rupture. Pain in the posterior shoulder with infraspinatus atrophy and decrease in the external rotation may be subtle.<sup>15</sup> Electromyography and a high index of suspicion could aid in arriving at a definitive diagnosis. The result from arthroscopic release is promising according to many of the case series.<sup>15</sup>

Certainly, the development of shoulder surgery is rapid and important in orthopaedics. 'Impingement' is only one of the many pathologies we have to think of when a patient comes to us with a shoulder pain. There is much to be gained by understandings from the evolution of the concepts throughout the years. On-going study and advancements in techniques will continue to bring us better clinical results in the treatment of shoulder pain. The shoulder is certainly of 'major' importance as we further elucidate it.

## Conflict of interest

The author has no conflicts of interest.

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Chan Wai-lam William,  
Associate Editor,

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E-mail: [wlchan@orthocentre.hk](mailto:wlchan@orthocentre.hk).