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Aspects of current management

THE ROLE OF SURGERY IN FROZEN SHOULDER

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Frozen shoulder is a common disorder which is characterised by pain and loss of movement. Its cause is poorly understood and its management is disputed because of lack of supporting evidence.

Duplay,[1] in 1872, used the term "peri-arthritis scapulohumerale" to describe the condition. In 1934, Codman[2] introduced the term frozen shoulder and set certain criteria for diagnosis and management. Neviaser[3] used the term adhesive capsulitis to reflect his findings at surgery and at post-mortem. Zuckerman and Cuomo[4] defined the condition as one of uncertain aetiology characterised by substantial restriction of both active and passive movement in the shoulder occurring in the absence of a known intrinsic disorder of the shoulder. The aetiology remains unknown, although some aspects of the pathophysiology have recently been documented.[5] The symptoms are generally self-limiting over one to three years. The role of treatment which includes physiotherapy, analgesics, injection of cortisone, manipulation and surgical release, must be assessed in the context of a tendency to self-resolution. This review examines the evidence to support interventional procedures in treating this painful and often debilitating condition.

Epidemiology

Hannafin and Chiaia[6] found the prevalence to be slightly greater than 2% in the general population. It is more common in women and between the ages of 40 and 60 years.[5,7] Recurrence is unusual[8] and both shoulders are affected in between 6% and 34% of cases.[5,9,10]

Classification

This condition may be primary or secondary. Zuckerman and Cuomo[4] have separated secondary into intrinsic, extrinsic and systemic categories. Table I[11-29] highlights the known conditions or associations with this disease.

Table I. Conditions associated with adhesive capsulitis in the literature

Authors	Condition
Stam[11]	Upper limb trauma
Arkkila et al[12]	Diabetes
Choy et al[13]	ACTH deficiency
Wohlgethan[14]	Hyperthyroidism
Bowman et al[15]	Hypothyroidism
Okamura and Ozaki[17]	Reduced bone mineral density
Lundberg and Nilsson[18]	Osteopenia
Tuten et al[19]	Cardiac surgery
Pineda et al[20]	Cardiac catheterisation through the brachial artery
Bruckner and Nye[21]	Neurosurgery
Patten and Hillel[22]	Radical neck dissection
Smith et al[23]	Dupuytren's disease
Riley et al[24]	Parkinson's disease
Boyle-Walker et al[25]	Cardiac disease
Wadsworth[26]	Pulmonary disease
Jayson[27]	Stroke
Bunker and Esler[28]	Hyperlipidaemia
Hutchinson et al[29]	Treatment with matrixmetalloproteinase inhibitor

Natural history

The pattern is one of eventual recovery through three symptom-related phases. The initial phase is associated with an insidious onset of pain increasing in severity over a period ranging from a few weeks to nine months.[6,9] During this 'freezing' phase, the shoulder loses active and passive movement. The second 'frozen' phase may last from four to nine months, during which the pain begins to abate leaving global stiffness of the shoulder. The final 'thawing' phase sees the return of movement towards normal over a period of five to 26 months. Codman[2] stated that recovery, even in severe cases, occurred in about two years and this view is supported by the study by Grey[30] in 1978, who reported that 24 of 25 patients treated conservatively returned to normal within a maximum of two years. Miller, Wirth and Rockwood[31] found that there was return of movement and minimal residual pain in most of their 50 patients treated by a home rehabilitation programme. However, residual symptoms have been widely documented. Some 28 years ago, Reeves[9] reported a prospective study of 49 patients with

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