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## Introduction

Although commonly referred to as frozen shoulder, which encompasses the end result of a number of etiologies, adhesive capsulitis is its own distinct pathologic entity. Most patients are successfully managed with physical therapy and gentle range of motion exercises. However, surgical intervention is indicated in patients when conservative treatment fails, including physical therapy, home exercises, intra-articular injections, and oral anti-inflammatory medications, with continued pain and limitation in activities of daily living. Adhesive capsulitis most commonly affects women between the ages of 40 and 60. Systemic conditions, such as obesity, thyroid dysfunction, cardiac disease, Dupuytren contracture, breast cancer treatment, and neurologic disorders, are thought to increase the risk for developing adhesive capsulitis [1]. Furthermore, several studies have shown that the diagnosis is 2 to 4 times more common in diabetic patients than in the general population. Few studies have examined the epidemiology of adhesive capsulitis in a large urban population compared with a matched control group or determined patient factors associated with requiring surgical intervention. The purpose of this study was to evaluate patient variables significantly associated with developing adhesive capsulitis compared with a sex-matched control group without adhesive capsulitis [2]. We also sought to determine those factors associated with adhesive capsulitis patients requiring surgical intervention. Demographic information, including sex, age, body mass index, race, and ethnicity were collected for all patients. The presence of concurrent medical comorbidities was also documented and verified by review of primary care physician notes, which included diabetes mellitus, hypothyroidism, hypertension, lupus, Sjögren syndrome, dermatomyositis, polymyositis, connective tissue disorder, and rheumatoid arthritis.

## Methodology

Shoulder pain status, medications, appointment history, and insurance information were collected. Patients diagnosed with adhesive capsulitis have high rates of comorbid conditions, most notably diabetes. As a result of a lack of clear pathophysiology and significantly high rates of comorbid pre-diabetes and diabetes, many authors have hypothesized that diabetes may play a central role in the pathogenesis of adhesive capsulitis [3]. Prior research points to high serum glucose increasing the rates of collagen glycosylation and cross-linking in the shoulder capsule tissue leading to inflammation, fibrosis, contracture, and significant limitations in range of motion.



in the deck chair or seated positions. Each case should be assessed on an individual basis and an alternative analgesic strategy sought if there is significant concern. Choice of local anaesthetic agent is usually determined by the duration and magnitude of surgery. Lidocaine is appropriate for short procedures and for those patients with pre-existing respiratory compromise in whom shorter block duration is desirable. However, for most surgery, a long-acting agent such as levobupivacaine or ropivacaine is more appropriate given the significant postoperative discomfort involved. A perineural catheter may be inserted while performing the interscalene block, allowing analgesia to be extended longer into the postoperative period. If a catheter is to be inserted, the initial block should be performed using one of the available proprietary catheter kits, and the catheter inserted to a depth of approximately 2–3 cm. Once the catheter is secured to the skin with an occlusive dressing,