

# Surgical Technique

## The “Hoover” (vacuum cleaner) technique for calcifying tendonitis deposits excision and removal of the calcific debris

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### ABSTRACT

A new technical tip for the improvement of the arthroscopic treatment of symptomatic calcifying tendinitis is described. Arthroscopic excision of calcifying tendonitis may result with multiple minute calcific debris in the subacromial bursa, causing severe post operative pain due to chemical irritation of the bursa. We suggest the use of a bladeless shaver barrel as a “Hoover” (vacuum cleaner) for arthroscopic clearance of these miniature calcific debris from the subacromial space after resection of the major deposits. The use of this technique resulted in good clinical outcome with improved post operative pain.

**Key words:** Calcifying tendinitis, eradication, hoover, shaver, vacuum cleaner

### INTRODUCTION

Calcifying tendinitis of the shoulder is a common and painful disorder of unknown etiology that is characterized by calcifications within the tendons of the rotator cuff. The first line of treatment is usually non-operative with up to 90% of success. For the patients remaining symptomatic, excision of the calcium deposits offers generally reliable but slow progressing decrease in pain level. We report on a new technique for minimizing the amount of residual calcium fragments within the subacromial bursa after excision of the macroscopic deposits in patients with calcifying tendinitis of the shoulder.

After performing a longitudinal incision of the cuff at the deposits site, an arthroscopic probe and a small curette are used to milk out the toothpaste-like contents, the calcific deposit [Figure 1], and an arthroscopic shaver is used to debride the remaining of the calcification, if needed.

At this stage, the upper surface of the cuff tendons and the walls of the subacromial bursa are usually lined with small calcified substance and have a typical snowstorm appearance. The blade is then removed from the shaver barrel, the hollow

shaver barrel is introduced into the subacromial bursa, the suction is activated, and the shaver is moved slowly across the subacromial space sucking the miniature calcific deposits as a vacuum cleaner [Figure 2]. At the end of the procedure, the subacromial space is clean of calcific deposits. The same “Hoover” technique can be used to suck out and remove the remaining calcifications from within the tendon.

Despite high rates of patient satisfaction and good clinical results after removal of calcific deposits in patients with calcifying tendinitis of the shoulder, slow postoperative pain relief and development of postoperative stiffness are a common encounter.

Seil *et al.*<sup>[1]</sup> found that only 15% of the patients experienced a sudden and nearly complete reduction of pain within the first 3 months. In the remaining patients, a slow, but continuous pain relief occurred over a 12-month period. Molé *et al.*<sup>[2]</sup> reported a general recovery period of 4 to 6 months. Ark *et al.*<sup>[3]</sup> reported on 7 of 22 patients experiencing an almost complete pain relief within 3 weeks. A gradual relief of symptoms within 3 to 6 months was noted in four patients.

The prevalence of secondary stiffness was reported to be 9 to 15%.<sup>[2,4]</sup> It is thought to be caused by residual calcium fragments

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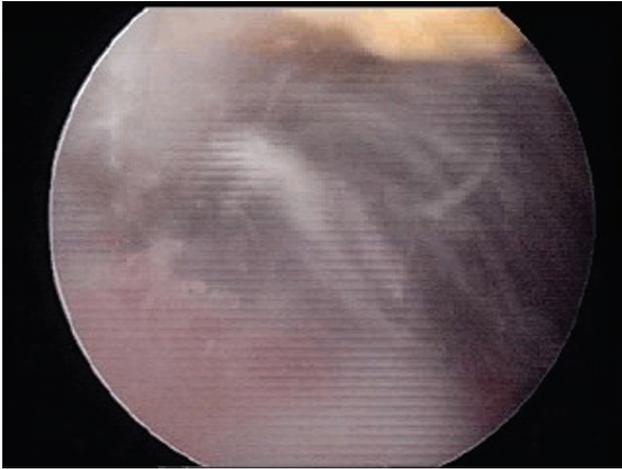


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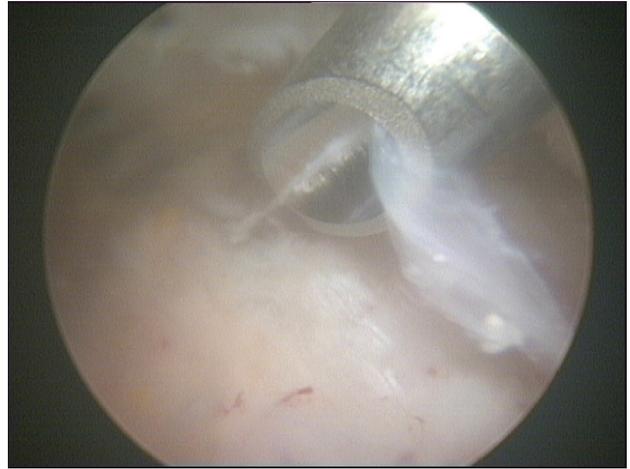
**Figure 1:** Typical white cloud appearance of the subacromial space after excision of the calcific deposits from the tendon

provoking an inflammatory reaction within the subacromial bursa, triggering the so called hyperalgesic crisis.<sup>[4]</sup>

How important it is to remove all of the calcium deposit remains uncertain. Although some studies have shown that the functional outcome following surgery is inversely related to the amount of calcification remaining,<sup>[5]</sup> other found that absolute eradication of the calcium deposit is probably not necessary, as cell-mediated resorption is already initiated by the surgery.<sup>[6]</sup>

However, it is clear that the presence of the minute calcific particles in the subacromial bursa provoke an inflammatory (chemical) reaction, triggering the so called hyperalgesic crisis, similar to that of acute calcifying tendonitis eruption.

In order to minimize the amount of miniature calcific deposits left in the shoulder, we have developed the "Hoover" (vacuum cleaner) technique. We have been using this technique for calcific deposits eradication from the subacromial space after performing an arthroscopic resection of calcific deposits for the last 13 years with good clinical results.



**Figure 2:** The "vacuum cleaner" effect of the hollow shaver barrel

This is a simple and efficient technique with no need for additional portals, special equipment, or extra cost.

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