Frozen shoulder, also called adhesive capsulitis, causes pain and stiffness in the shoulder. Over time, the shoulder becomes very hard to move. Frozen shoulder occurs in about 2% of the general population. It most commonly affects people between the ages of 40 and 60, and occurs in women more often than men. Patients are routinely referred for physiotherapy.

A recent study by Sokk et al. have demonstrated improvement in terms of isometric strength and active range of motion after MUA in patients with frozen shoulder syndrome. Active range of motion in the same direction was measured goniometrically. A significant reduction in shoulder pain day by day and night was recorded 1 and 6 months after MUA (p < 0.05).

Eid has shown that mini-open-coracohumeral release with MUA has some added benefits. A case series including 15 patients with idiopathic frozen shoulder treated with this technique showed improvement. The disease left untreated, runs a prolonged course over years. Many studies failed to study one treatment modality at a time. When two or more studies were combined, it was more difficult to tell the true treatment effects of each management tool. In time, studies evaluating each modality alone and in various combinations will help guide treatment for this persistently painful condition.

This study was conducted to determine the immediate outcome of MUA in patients with adhesive capsulitis in terms of gain of range of movement (ROM) and pain relief. It may prove beneficial for both orthopaedic surgeons and physical therapists in establishing criteria to go for MUA besides conservative management. Informed consent from all the participants was obtained in writing. All participants, 30 in number, the candidates of MUA, were interviewed before MUA to figure out their pain level, range of motion and functional limitations. All diagnosed cases of frozen shoulder who were not responding to conservative management like physiotherapy, painkillers and non-steroidal anti-inflammatory drugs were included. Participants with serious medical conditions like stroke, heart diseases, humeral fracture cases and old osteoporotic cases were excluded from the study. Numerical pain rating scale and goniometer was used to measure pain intensity and ROM respectively. Then after MUA, subjects were again interviewed about their complaints. All diagnosed cases of frozen shoulder who were not responding to conservative management like physiotherapy, painkillers and non-steroidal anti-inflammatory drugs were included. Participants with serious medical conditions like stroke, heart diseases, humeral fracture cases and old osteoporotic cases were excluded from the study. Numerical pain rating scale and goniometer was used to measure pain intensity and ROM respectively.

Out of 30 patients, 29 representing 96% of all patients had symptoms lasting more than 2 months and only one patient had symptoms lasting less than 1 month had MUA. All of the patients were immediately referred to physical therapy and postoperative findings were recorded and compared with pre-operative ones. There was a significant difference in pain intensity (t = 5.917) which decreased after MUA. Five out of 30
had increased level of pain intensity and 25 patients had decreased pain intensity.

Range of motion of external rotation increased after MUA \( (t = -6.51) \). Nine patients had improved external rotation more than 60 degrees after MUA. In 21 patients range remained at same or decreased level (Table I).

Range of medial rotation increased in all 30 patients \( (t = -7.64) \). ROM of flexion \( (t = -8.00) \) and abduction \( (7.663) \) also increased in all 30 patients. Thus, the most significant increase in terms of range of movement was seen in flexion followed by abduction, medial and lastly external rotation (Table I).

This study showed that most of the patients 48.4% were having symptoms lasting for 4 months and were resistant to conservative management. Variety of treatment options including MUA are available as described in detail by Maund et al.⁴ by doing a systematic review and cost effective analysis of management of frozen shoulder. They evaluated randomized controlled trials (RCTs) evaluating physical therapies, arthrographic distension, steroid injection, sodium hyaluronate injection and manipulation under anaesthesia. They showed that there was limited clinical evidence on the effectiveness of treatments for primary frozen shoulder.⁵

The timing of MUA has attracted little attention to-date. All studies describe a period of conservative management before proceeding to MUA. In the present study, this period was of 2 months. Delay has been associated with poorer outcome. So regarding the timing of treatment, it has been shown by Thomas that a good outcome follows an MUA and injection of steroid and local anaesthetic; independent of the duration of presenting symptoms and this improvement is maintained in the long-run.⁶ This study also showed the similar results which was confined to our setting only and was observational in nature.

Hence, MUA is indicated for those patients who have adhesive capsulitis who are not responding to conservative methods including physiotherapy. Immediately postoperatively, patients reported decreased level of pain and increased range of movement although external rotation seems to be the least improved.

### REFERENCES


