

## Shelf Syndrome in Elderly People

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### Abstract

It is considered that shelf syndrome mainly occurs in younger people and often in athletes. Shelf syndrome has rarely been reported in elderly people. Although shelf syndrome is rare in elderly people, it should be suspected whenever severe pain and a locked knee are present.

**Keywords:** Medial synovial plicae; Elder people; Osteoarthritis

### Introduction

The synovial plica of the knee joint is considered as a remnant of the septum which existed in the patellofemoral joint during fetal life [1].

The synovial plica is classified into four distinct anatomical patterns: superior, medial, inferior and lateral. It is said that in medial patellar and suprapatellar plica, the symptom occur. Suprapatellar plica, that is rarely known, divides the suprapatellar pouch from the remainder of the knee. Particularly in complete type, the symptoms occur.

Medial suprapatellar synovial plica is known as a 'shelf' [1-3]. "Shelf" refers to the medial alar fold extending and ascending the medial joint wall towards the suprapatellar synovial plica, showing a shelf-like appearance [1-3]. It is arthroscopically classified into 4 types [4] and was noted in 50% to 70% of Japanese and 20% to 45% of Americans and Europeans [3,5-8]. Syndrome from a pathological medial patella plica is called as Shelf syndrome. Shelf syndrome occurs when the shelf impinges into the patellofemoral joint or is extended from the medial femoral condyle secondary to pressure. Impingement of the shelf is not necessarily diagnosed as shelf syndrome and consideration of the differential diagnoses is required [9].

Pain is the primary complaint in the medial patella. The pain is increased with repetitive activities, such as running, jumping or ascending and descending of stairs. The pathophysiology of the plica syndrome is not clearly defined. Generally when there is inflammation associated with edema and thickening, the plica can become relatively inelastic and symptomatic as it impinges into patellafemoral joint. This phenomenon causes secondary mechanical synovitis and erosion about the margins of the condyle.

The diagnosis of plica syndrome can be made from the history alone and is supported by the physical examination. In some cases, plicae are seen clearly on MR imaging. However, MR imaging does not show the presence of a plica in all cases.

It occurs mainly in younger persons (particularly athletes) and rarely in the elderly.

We report three elderly patients with a medial synovial plica causing severe pain and locked knees. Impingement of the shelf is not necessarily a shelf syndrome, but should be considered in the

differential diagnosis if there is pain. Our patients had no symptoms in their early or middle life, but developed severe pain and a locked knee when they were elderly [10]. The difference between shelf syndrome in elderly patients and that in younger patients is that the former involves osteospur formation, which is a degenerative change in the patellofemoral joint, and degeneration and tearing of the shelf margin. In their early or middle life, they have had the plica in their knee joint and no symptom (Figures 1 and 2).

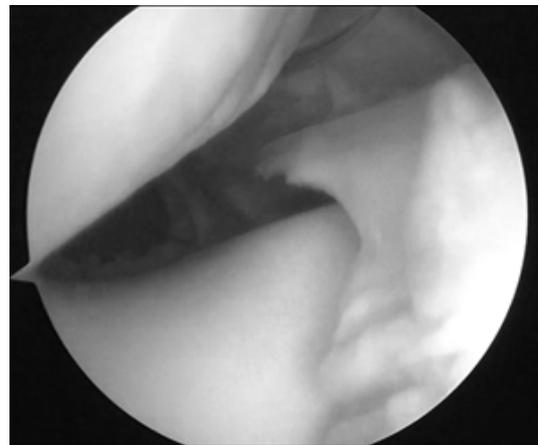
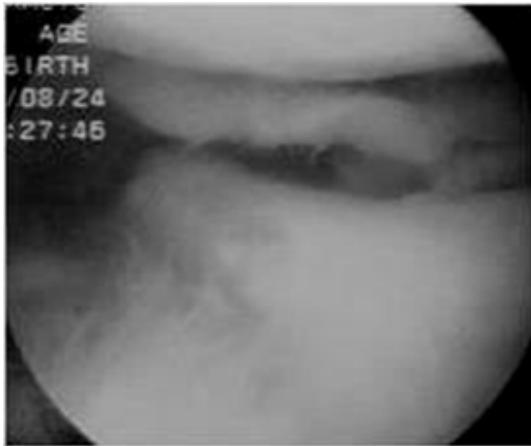


Figure 1: Medial plica in younger people.



**Figure 2:** Medial plica in elderly people.

With increase of the age, Osteospur and degenerative cartilage around the plica appear and cause the symptom.

The diagnosis of shelf syndrome in elderly patients is so difficult. Because elder patients have degenerative changes in their menisci and cartilage. Indeed we considered our patients' symptom was caused by meniscal injury or osteoarthritis.

As for the pathogenic mechanism, the possible causes of shelf syndrome in younger patients are decreased flexibility and retractility of the shelf, the attachment of the infrapatellar fat pad, and enhanced irritability of the joint capsule. In elderly patients, the severe pain and locked knee are caused by a torn shelf (which is initially asymptomatic

and categorised as type-C) and leads to decreased retractility owing to degeneration or transformation into a type-D shelf secondary to osteospur formation causing impingement.

According to the treatment, excision of the plica is an appropriate therapeutics, when the patient's symptoms are clearly related to the plica. And so the appropriate diagnosis of the plica is most important.

Although shelf syndrome is rare in elderly people, it should be suspected whenever severe pain and a locked knee are present.

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