Demographic Causes of Chronic Lateral Elbow Pain along Arthroscopic Criteria

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Objective: *We conducted this study in order to find out the demographic causes of pathology for chronic lateral elbow pain along arthroscopic criteria.*
Material and Method: *We conducted descriptive study of the medical records of the patients with chronic lateral elbow pain who refractory to conservative treatment. Diagnostic arthroscopy of the elbow was performed by a specialist in elbow surgery at HRH Princess Maha Chakri Sirindhorn Medical Center from March 2011 to October 2014.*
Results: *There were 29 patients who met inclusion criteria in our study. With regard to intra-articular pathologies, we found a radiocapitellaplica in 41% of the patients. In 21% of the patients, we found isolated tennis elbow. The concomitant radiocapitellaplica and tennis elbow were also found in 21% of patients. Cartilage lesion was found in 10% of the patients and plica with posterolateral impingement was found in 7% of patients.*
Conclusion: *Causes of the chronic lateral elbow pain are complex. The diagnosis should be made by precise clinical sign and proper investigations. In our series, the lateral epicondylitis was not the majority cause of chronic lateral elbow pain. The benefits of arthroscopy are not just the minimal invasive approach directly to the lesion, but also the intra-articular and dynamic investigation allow the surgeon to make sure that all pathology were treated.*

Keywords: *Chronic lateral elbow pain, Arthroscopy*

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Various conditions can cause lateral elbow pain. Lateral epicondylitis, which is the tendinosis of the ECRB, is a common diagnosed of lateral elbow pain[1]. The other conditions are nerve entrapments, posterolateral rotatory instability, posterolateralplica syndrome, cartilage lesions, occult fractures, impaction injury, and arthritis[2,3].

Today, 1-3% of the adult population suffers from lateral epicondylitis[4]. The common tools for diagnosis of the lateral epicondylitis are clinical signs and symptoms. Although the lateral epicondylitis is a self-limited disease that takes time to resolve, a variety of conservative treatment have been reported to be beneficial, including various pain therapy modalities, steroid injection, counterforce bracing and acupuncture. Surgery may be the last resort of treatment and required only in 4% to 8% cases[5].

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Newer studies report the source of lateral elbow pain such as intra-articular pathologies varies between 5%[6] to 69%[7]. Inflammation of the radio-capitellarplica is commonly mentioned as a cause of lateral elbow pain. This condition is probably is more common than generally recognized and when this plica extends to posterior, it can be a complex cause of posterolateral impingement, this can explain the inadequate in open tennis elbow surgery.

Verhaar et al showed the result of open procedure for the lateral epicondylitis is usually unpredictable[8], the explanation might be insufficient assessment of all pathologies which can cause the pain leads to inadequate or incorrect diagnosis. Our hypothesis is that lateral epicondylitis may not be the major cause of chronic lateral elbow pain. With uncertain reports from the past showing the commonly found lateral epicondylitis, and recent reports of more intra-articular pathology, the actual causes of chronic lateral elbow pain should be sought. With advanced technique in elbow arthroscopy, not only we can offer the minimal invasive treatment to the patient, but we can also make the diagnosis of intra-articular pathology in a dynamic

fashion. Therefore, the present study was conducted to identify the demographic causes of chronic lateral elbow pain along arthroscopic criteria.

Material and Method

The cross-sectional study of the demographic data of the patients who present with chronic lateral elbow pain and were performed elbow arthroscopic surgery from March 2011 to October 2014 was done from medical records. All of these patients were refractory to full conservative treatment (steroids injection, physiotherapy, medication) at least 6 months before proceeding to surgery. In the reference note, every patients were diagnosed as the lateral epicondylitis at least once elsewhere. All elbow arthroscopic surgery was performed by single surgeon (CC) at HRH Princess Maha Chakri Sirindhorn Medical Center. The inform consent of the patients was obtained. The patients with evidences of instability, nerve lesion, history of elbow injury, previous elbow surgery were excluded.

Surgical techniques: Patient was positioned in lateral decubitus with a support under the arm. A pneumatic tourniquet was inflated during the operation. The starting portal was made depending on the diagnosis of main pathology. The proximal antero-medial portal was created as a starting portal in an anterior lesion, follow with the antero-lateral portal by an outside in technique. The proximal antero-lateral portal was created for place the retractor. In the posterior compartment lesion, the starting portal was the direct posterior portal or postero-lateral portal. The direct lateral or soft spot portal was used to access the lateral gutter. Every patient was under arthroscopic exam both anterior and posterior compartment.

The arthroscopic finding that leads to the diagnosis of the lateral epicondylitis is pathologic lesion at capsule corresponding in ECRB insertion. The lesion can be ranged from fraying to capsular defect[9,10]. For plica lesion, the diagnosis was made with sign of inflammation or thickening of tissue that can impinge at the front and/or the back of radiocapitellum joint when elbow motion[11]. For the posterolateral impingement, the finding also include bony at olecranon tip or soft tissue impingement in posterolateralradiocapitellum. The cartilage lesion was recognized and classified along the osteochondritisdissecans of the capitellum criteria[12].

Results

During that period, 33 cases with chronic lateral elbow pain were performed arthroscopic surgery. After excluded from the criteria, we had 29 patients left in this study. Ten of them were male and 19 were female. The average age was 40 years old (range from 15-59 years). The surgery was performed on the right side for 17 cases and the left side for 12 cases (Table 1).

With regard to intra-articular pathologies, we found a radiocapitellaplica in 41% of the patient (Fig. 1) and 21% of the patient, we found isolated tennis elbow (Fig. 2). The concomitant radiocapitellaplica and tennis elbow was also found in 21% of the patients. Cartilage lesion was found in 10% of the patients and plica with posterolateral impingement was found in 7% of patients (Fig. 3).

Discussion

There are many causes of chronic lateral elbow

Table 1. Demographic data of patients

Mean age (years)	40 (15-59)
Right	17
Left	12

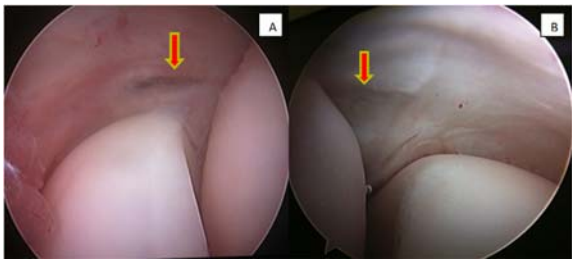


Fig. 1 A, B) Showed the pathologic lesion at capsule corresponding in ECRB insertion.

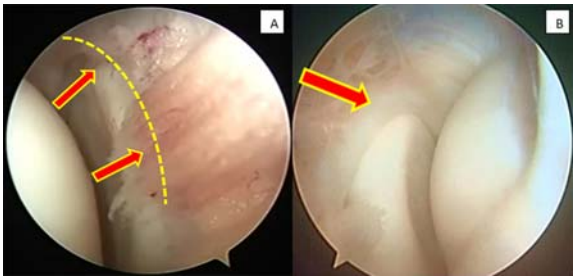
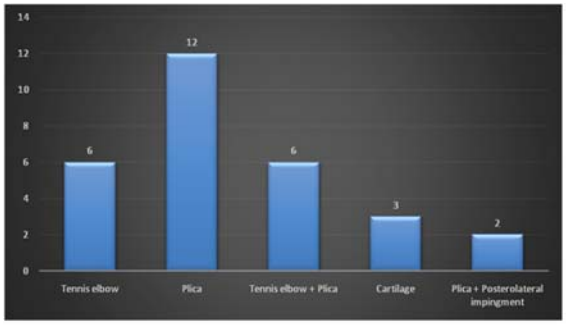


Fig. 2 A, B) Showed the radiocapitella plica that is a thickening of tissue that can impinge at the front and/or the back of radiocepitellum joint when elbow motion.



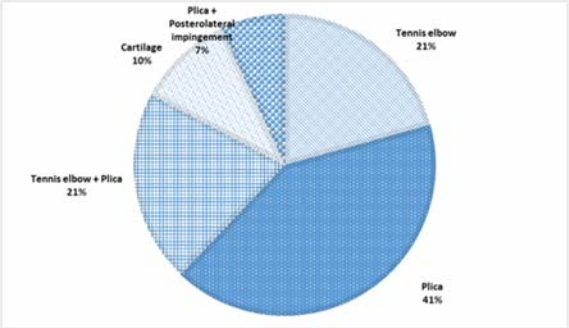


Fig. 3 Epidemiology of lateral elbow pain in arthroscopic aspect.

pain. With regard to lateral epicondylitis, the natural history is a self-limited entity that typically takes 8-12 months to resolve. Interestingly, orthopedists frequently make the diagnosis of the lateral epicondylitis, and overlook the other or the concomitant intra-articular lesion. In our series, all of the patients used to be diagnosed with the lateral epicondylitis at least one time or referred to our tertiary care center with the lateral epicondylitis refractory to conservative treatment. However, our finding confirm that lateral epicondylitis is not the major cause of chronic lateral elbow pain. We also found that the cause of chronic lateral elbow pain may not be from a single pathology, 21% of patients have tennis elbow with plica and 7% of patients have posterolateral impingement with plica.

The radiocapitellaplica is an embryological remnant of synovial membrane. Proposed contributing factors are the altered mechanics at the radio-capitella joint, microtrauma due to repetitive activities, and synovitis[13-15]. In an MRI study, Husarik et al[16] found a synovial fold in 98% of asymptomatic subjects. The high prevalence of the synovial fold suggests that their presence may not lead to the clinical symptoms. We believe that the diagnosis of this lesion based on arthroscopy should be more accurate, because we can prove the impingement of the synovial fold in radio-capitella joint with elbow motion or from the secondary sign which is fraying or synovitis of the tissue in that area. However, the major finding of our results are the plica lesion, we found 69% of cases and 41% of them are the isolated intra-articular pathology. Thus, along the arthroscopic criteria, we should keep in mind that the plica may be the potential cause of the vague lateral elbow pain.

Only the past few decades, elbow arthroscopy has become more commonly used because of improvements in instrumentation and techniques. Because of an attractive way to access the joint without a larger incision, the arthroscopic treatment of conditions of the elbow is gaining popularity. For lateral epicondylitis, over 72-99% good to very good results are reported after carrying out an arthroscopic release. The snapping of the radiocapitellaplica typically can be replicated on arthroscopic examination and allows the surgeon to locate the area to be released. After adequately release the synovial plica, the arthroscopic examination can be repeated to ensure the release is complete.

Our study has some limitations. This study cannot answer the overall prevalence causes of lateral elbow pain but focuses only on chronic cases that need surgical treatment. From the methodological point of view, this is descriptive study evaluated by the single surgeon. However, this could be taken in account in planning new scientific studies. Further study for the inter-observer reliability in the arthroscopic diagnosis and reported clinical outcome with adequate follow-up period are planned.

Conclusion

Causes of the chronic lateral elbow pain can be complicated. The diagnosis should be made by precise clinical sign and proper investigations. In our series, the lateral epicondylitis was not the major cause of chronic lateral elbow pain. The benefits of arthroscopy are not just the minimal invasive approach directly to the lesion, but also the intra-articular and dynamic investigation that allow the surgeon to make sure that all pathology were treated.

What is already known on this topic?

Chronic lateral elbow pain has several causes. It is most often associated with lateral epicondylitis, which may make the orthopedist overlook the other or the concomitant intra-articular lesion. Those lesions are such as the radiocapitella plica, the cartilage lesion and/or the posterolateral impingement syndrome.

What this study adds?

The lateral epicondylitis was not the major cause of chronic lateral elbow pain and the concomitant intra-articular lesions such as plica should not be overlooked. We suggested that the diagnosis of this lesion based on arthroscopy are more accurate, because we can prove the impingement of the synovial fold in radio-capitella joint with elbow motion or from the secondary sign which is fraying or synovitis of the tissue in that area.

Potential conflicts of interest

None.

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จำแนกสาเหตุของอาการปวดข้อศอกด้านนอกเรื้อรังโดยวินิจฉัยจากการส่องกล้อง

พิงควรรศ คงมาลัย, ชลวิช จันทร์ลลิต

ภูมิหลัง: *ผู้ป่วยที่มาพบแพทย์ที่คลินิกด้วยอาการปวดข้อศอกด้านนอกเรื้อรัง มักได้รับการวินิจฉัยเป็นโรค Lateral epicondylitis หรือ Tennis elbow มีการศึกษามากมายแสดงให้เห็นว่าสาเหตุที่แท้จริงอาจไม่ใช่ Lateral epicondylitis หรืออาจพบสาเหตุได้มากกว่า 1 โรค จึงมีการศึกษานี้ขึ้นเพื่อจำแนกสาเหตุของอาการปวดข้อศอกด้านนอกเรื้อรังโดยวินิจฉัยจากการส่องกล้อง*

วัตถุประสงค์: *เพื่อจำแนกว่าเหตุของอาการปวดข้อศอกด้านนอกเรื่อรังโดยการวินิจฉัยจากการส่องกล้องมาจากพยาธิสภาพต่าง ๆ หลายชนิด โดยอาจเกิดเพียงพยาธิสภาพเดียวหรือเกิดร่วมกันก็ได้*

วัสดุและวิธีการ: *เป็นการศึกษาลักษณะบรรยายในคนไข้ที่มารักษาด้วยอาการปวดข้อศอกด้านนอกเรื้อรัง ซึ่งไม่ประสบผลสำเร็จด้วยการรักษาแบบประคับประคอง การผ่าตัดส่องกล้องข้อศอกทำโดยศัลยแพทย์กระดูกและข้อผู้เชี่ยวชาญทางข้อศอกที่โรงพยาบาลศูนย์การแพทย์สมเด็จพระเทพฯ ตั้งแต่เดือนมีนาคม พ.ศ. 2554 ถึง เดือนตุลาคม พ.ศ. 2557*

ผลการศึกษา: *จากคนไข้ทั้งหมด 29 คน เมื่อจำแนกตามพยาธิสภาพภายในข้อศอกพบว่ามี radiocapitellaplica เพียงอย่างเดียว 41% Lateral epicondylitis เพียงอย่างเดียว 21% พบ radiocapitellaplica และ lateral epicondylitis ร่วมกัน 21% พยาธิสภาพของกระดูกอ่อน 10 และ plica ร่วมกับ posterolateral impingement 7%*

สรุป: *สาเหตุของอาการปวดข้อศอกด้านนอกเรื้อรังค่อนข้างซับซ้อน การวินิจฉัยให้ถูกต้องจำเป็นต้องอาศัยการตรวจร่างกายและการส่งตรวจทางรังสีที่เหมาะสม ซึ่งงานวิจัยนี้พบว่า Lateral epicondylitis ไม่ใช่สาเหตุที่พบมากที่สุดของอาการปวดข้อศอกด้านนอกเรื้อรัง และข้อดีของการผ่าตัดข้อศอกโดยการส่องกล้องนั้น นอกจากจะมีการบาดเจ็บน้อยและฟื้นตัวได้ไวแล้วยังสามารถเห็นพยาธิสภาพในข้อศอกได้ขณะที่มีการเคลื่อนไหวของข้อศอกด้วย ทำให้แพทย์ผ่าตัดมั่นใจมากขึ้นว่าได้แก้ไขสาเหตุของอาการปวดข้อศอกได้ทั้งหมด*