

Subtypes of ramp lesion according to chronicity of Anterior Cruciate Ligament tear

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INTRODUCTION:

Ramp lesions and meniscocapsular junctional tears of the medial meniscal posterior horn (MMPH) occur more frequently in patients with chronic anterior cruciate ligament (ACL) tears. Tears can also be classified into subtypes based on their pattern and location. However, no previous studies have reported the relationship between the chronicity of ACL tears and ramp lesion subtypes.

Therefore, this study aimed to evaluate the relationship between the chronicity of ACL tears and the subtypes of ramp lesions. We have also suggested different suture techniques for meniscal repair according to the new subtype classification of ramp lesions.

This study hypothesized that MMPH double longitudinal tears occur more commonly than pure meniscocapsular junctional tears (traditional ramp lesions) in patients with chronic ACL tears.

METHODS:

Between May 2015 and April 2023, 367 patients who underwent primary ACL reconstruction were evaluated. Meniscal repair was performed in cases where a ramp lesion was identified. According to the exclusion criteria, 96 patients who underwent repair of ramp lesion were divided into three groups (PR type: pure ramp lesion, RR type: red-red ramp lesion, and DL type: double longitudinal ramp lesion), and the groups were compared for chronicity of ACL tears and time from injury (TFI).

RESULTS:

Of the 30 patients classified as having PR type lesions, 11 (36.7%) had chronic ACL tears. Likewise, of the 37 patients classified as having RR type lesions, 14 (37.8%) had chronic ACL tears. In contrast, among the 29 patients classified as having DL type lesions, 20 (69.0%) had chronic ACL tears, indicating a statistically significant difference ($P < .05$). This distinction was significant up to 12 months after injury.

DISCUSSION AND CONCLUSION:

Pure ramp lesions accounted for only 31% of ramp lesions in patients with ACL tears. In addition, chronic ACL tears more frequently involved double longitudinal ramp lesion than pure ramp or red-red ramp lesions.

Figure 1. Diagram for a new classification of subtypes of ramp lesions. (A) meniscocapsular junctional tear (B) pure ramp lesion (C) red-red ramp lesion (D) double longitudinal ramp lesion

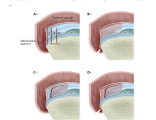


Figure 2. The relationship between chronicity of ACL tears and subtypes of ramp lesions. (A) Chronic ACL tears (B) Acute ACL tears (C) Chronic ACL tears (D) Acute ACL tears

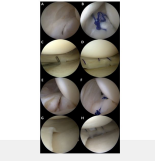


Figure 3. Diagram of the relationship between chronicity of ACL tears and subtypes of ramp lesions. (A) Chronic ACL tears (B) Acute ACL tears (C) Chronic ACL tears (D) Acute ACL tears

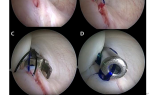


Figure 4. Diagram of the relationship between chronicity of ACL tears and subtypes of ramp lesions. (A) Chronic ACL tears (B) Acute ACL tears (C) Chronic ACL tears (D) Acute ACL tears

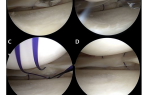


Figure 5. Diagram of the relationship between chronicity of ACL tears and subtypes of ramp lesions. (A) Chronic ACL tears (B) Acute ACL tears (C) Chronic ACL tears (D) Acute ACL tears

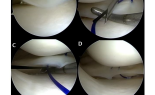


Figure 6. Diagram of the relationship between chronicity of ACL tears and subtypes of ramp lesions. (A) Chronic ACL tears (B) Acute ACL tears (C) Chronic ACL tears (D) Acute ACL tears

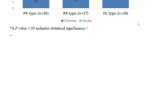


Figure 7. Diagram of the relationship between chronicity of ACL tears and subtypes of ramp lesions. (A) Chronic ACL tears (B) Acute ACL tears (C) Chronic ACL tears (D) Acute ACL tears

