

**Dr. NGUYEN HA NGOC**

**EVALUATION RESULTS OF THE  
ARTHROSCOPY SURGERY OF DOUBLE  
BUNDLES ANTERIOR CRUCIATE  
LIGAMENT RECONSTRUCTION WITH  
THREE TUNNEL MODIFY TECHNIQUE  
AT 175 HOSPITAL**

*Ho Chi Minh city*

*07/2017*

# Objective

- Rupture ACL is a common lesion in knee trauma.
- There are many tendon graft different.
- Many methods of reconstruction ACL.

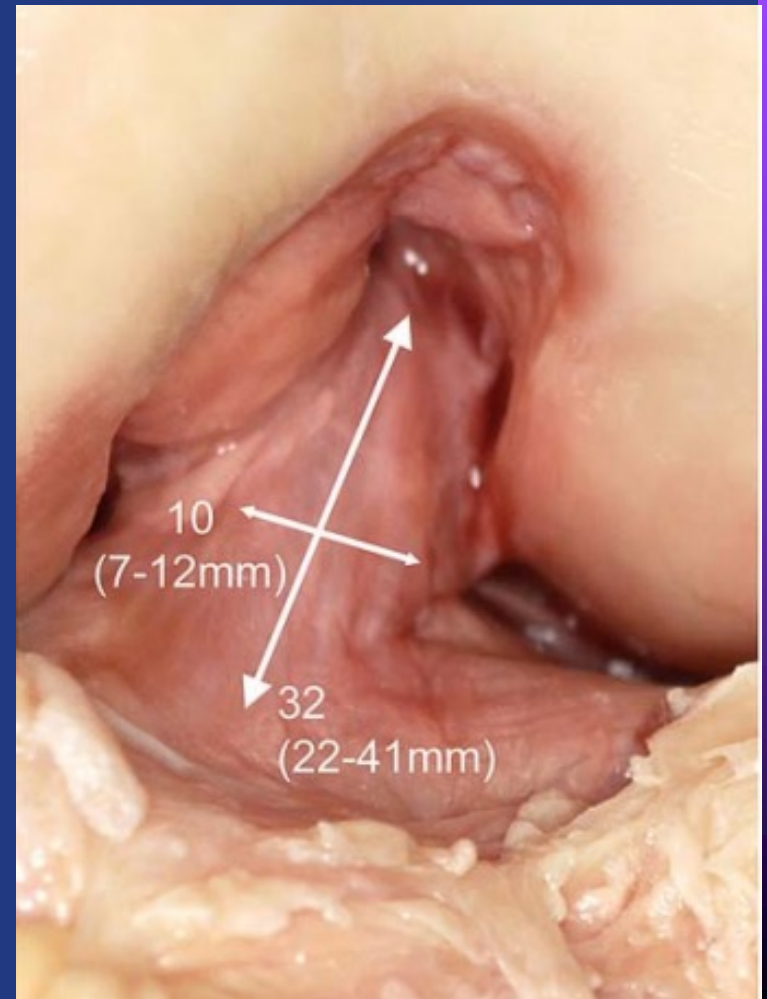
## **PURPOSE**

- 1. Evaluation results of the arthroscopy surgery of double bundles anterior cruciate ligament reconstruction with three tunnel modify technique at 175 hospital.**
- 2. In research results, have some remarks during the follow-up and surgery.**

## Overview

# ANATOMY

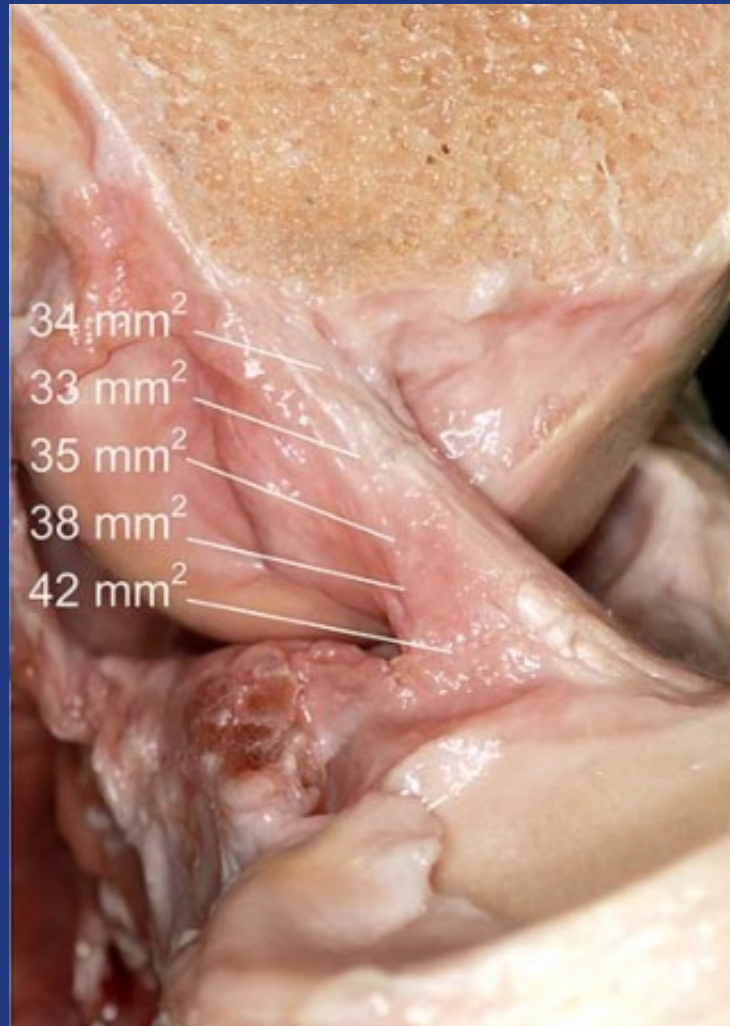
- Length : 32 mm
- width : 10mm



## Overview

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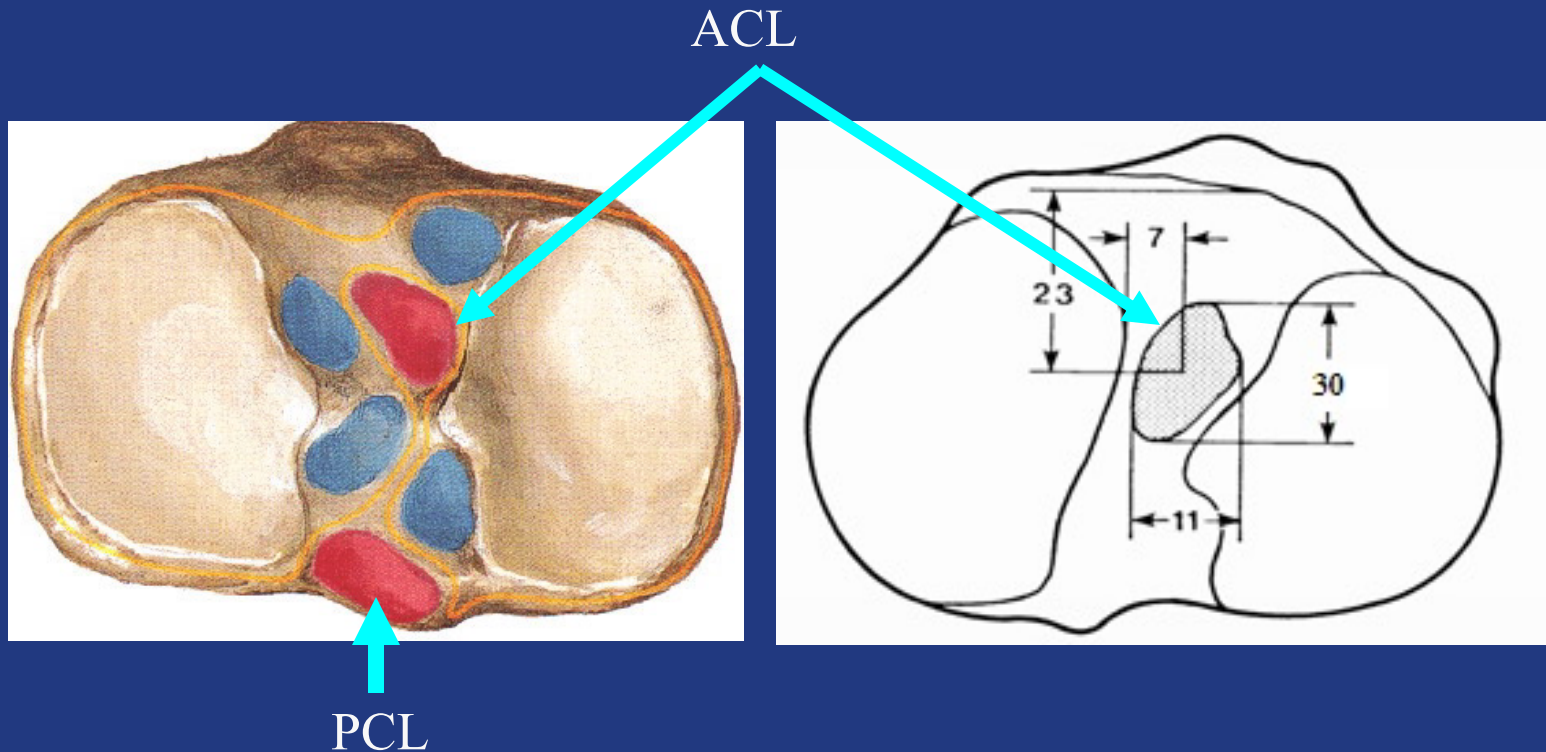
# Anatomy ACL



# Overview

## Place tibia

- Plateau tibia : length  $\sim 11\text{mm}$  , width  $\sim 30\text{mm}$  .



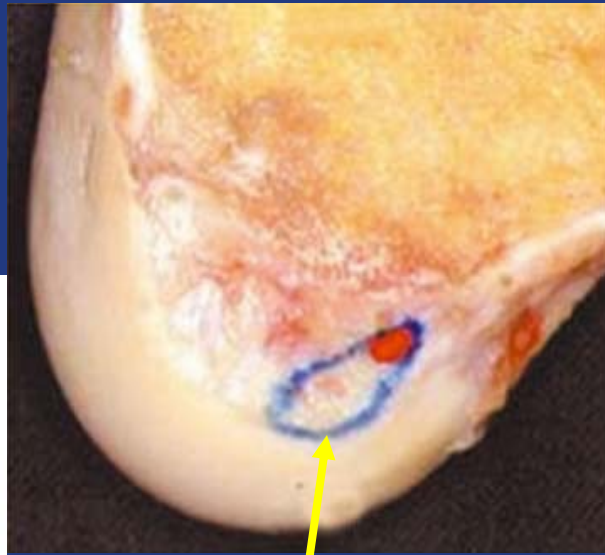
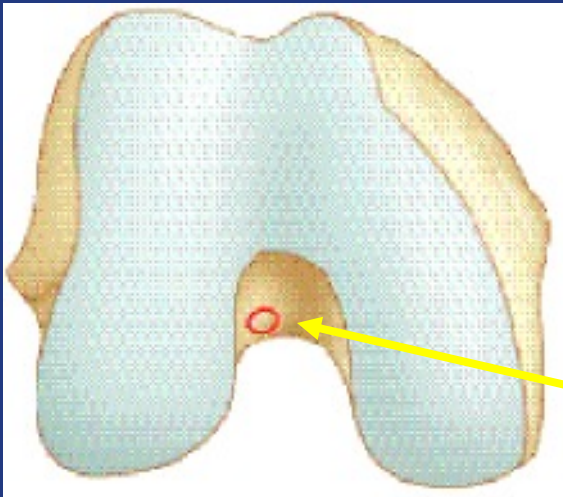
## Overview

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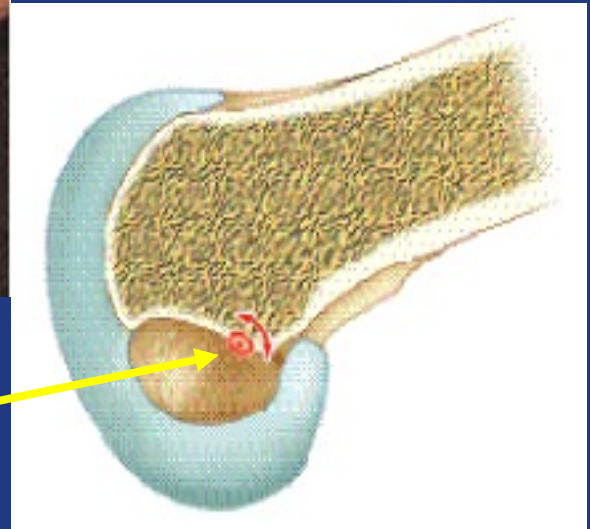
# ACL Femoral footprint

- Length ~ 26mm , width ~ 11mm .

*Coronal*



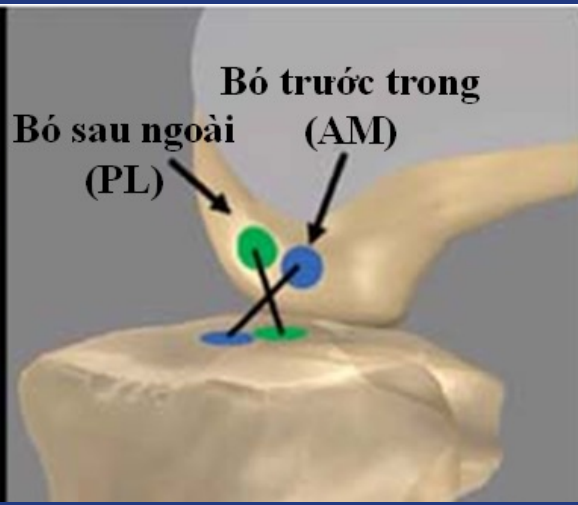
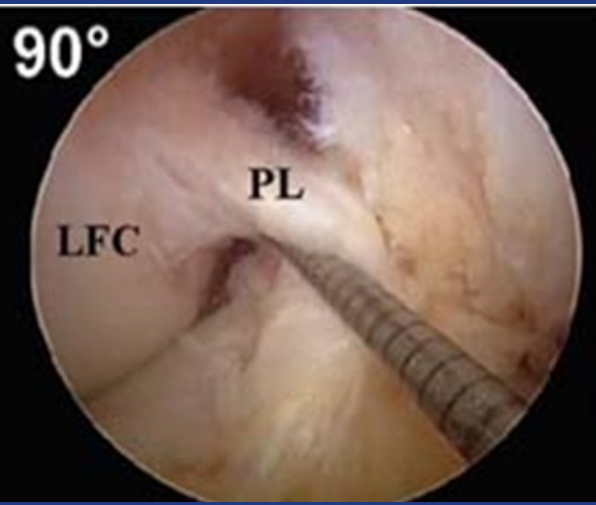
*Sagittal*



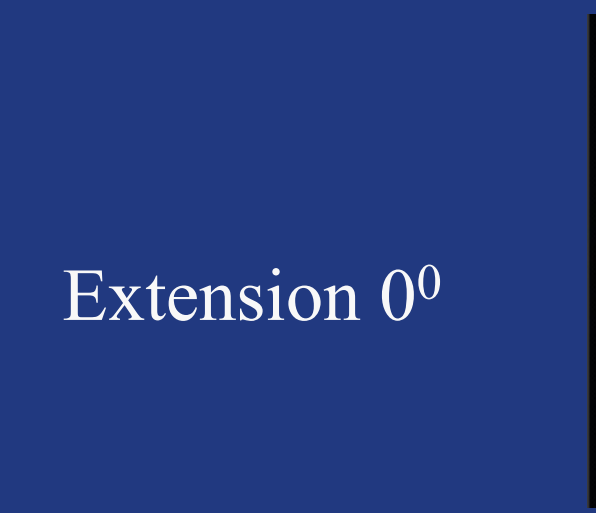
ACL

# Overview

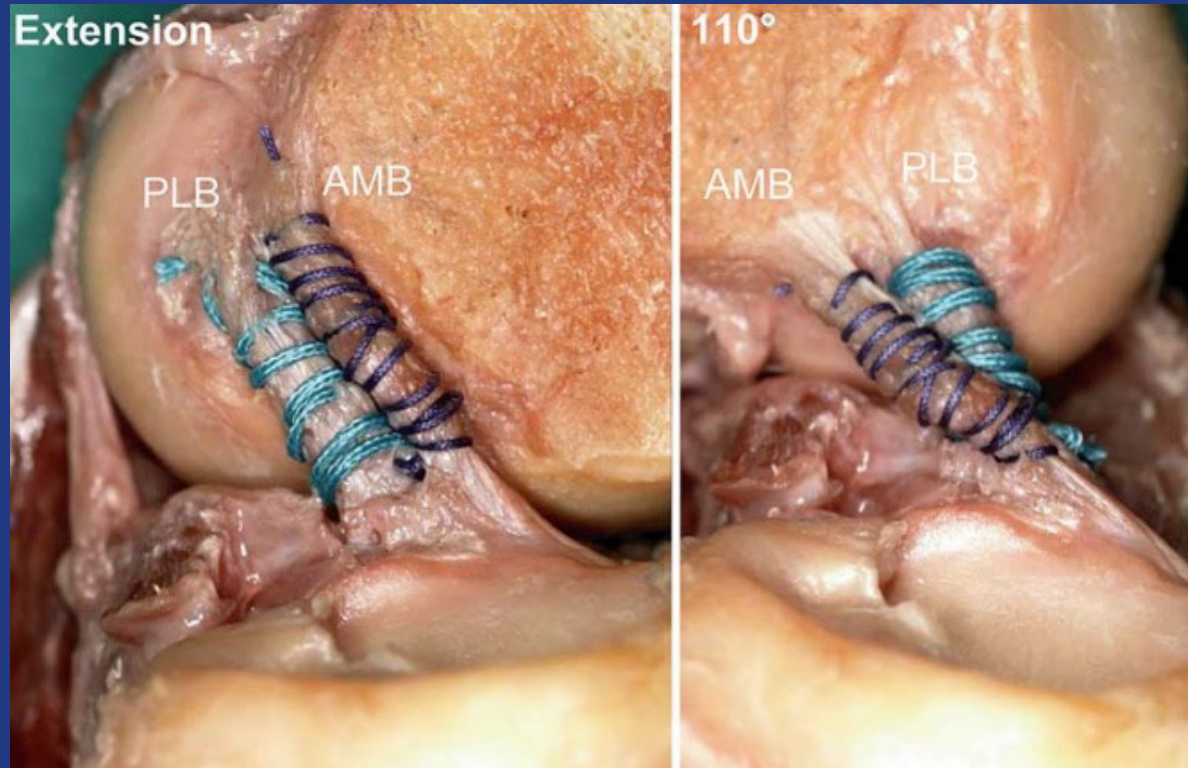
## Variable ACL



Flexion 90°



# Overview

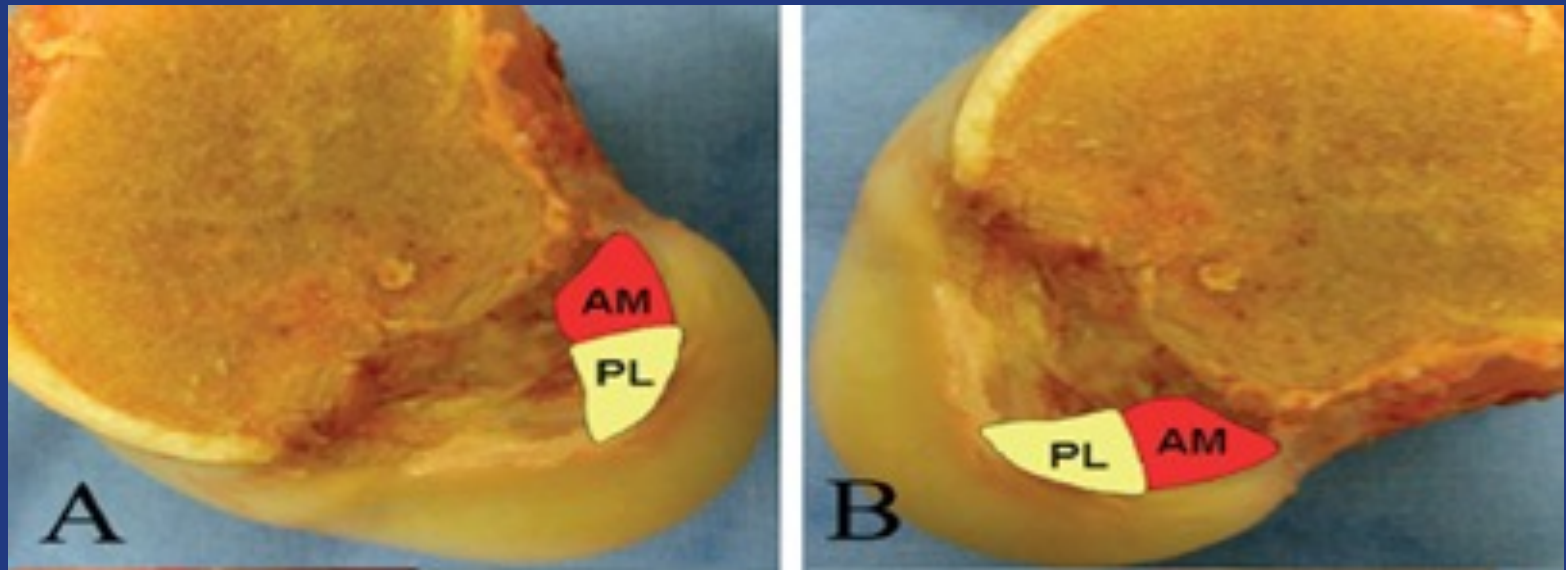


According to Odensten: bundle AM: length 28mm,  
PL: 17,8mm, the same diameter.

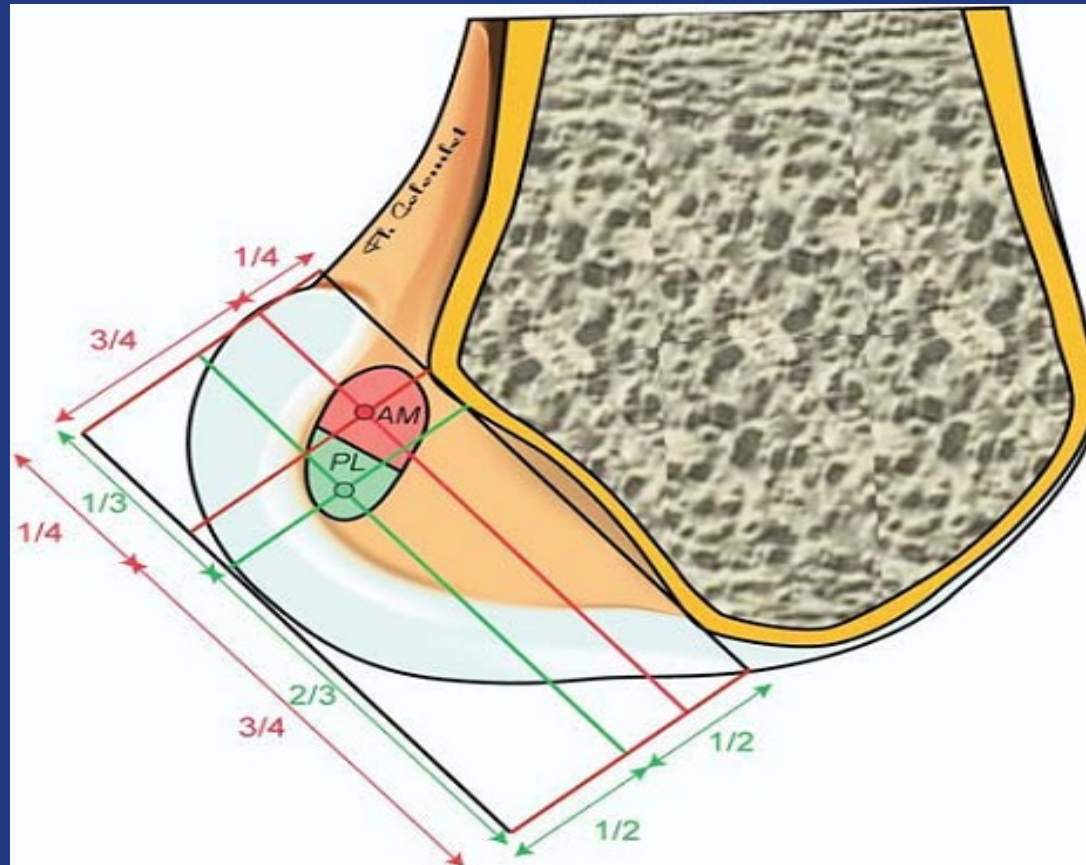
# Overview

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## Femur attachment ACL



# Overview

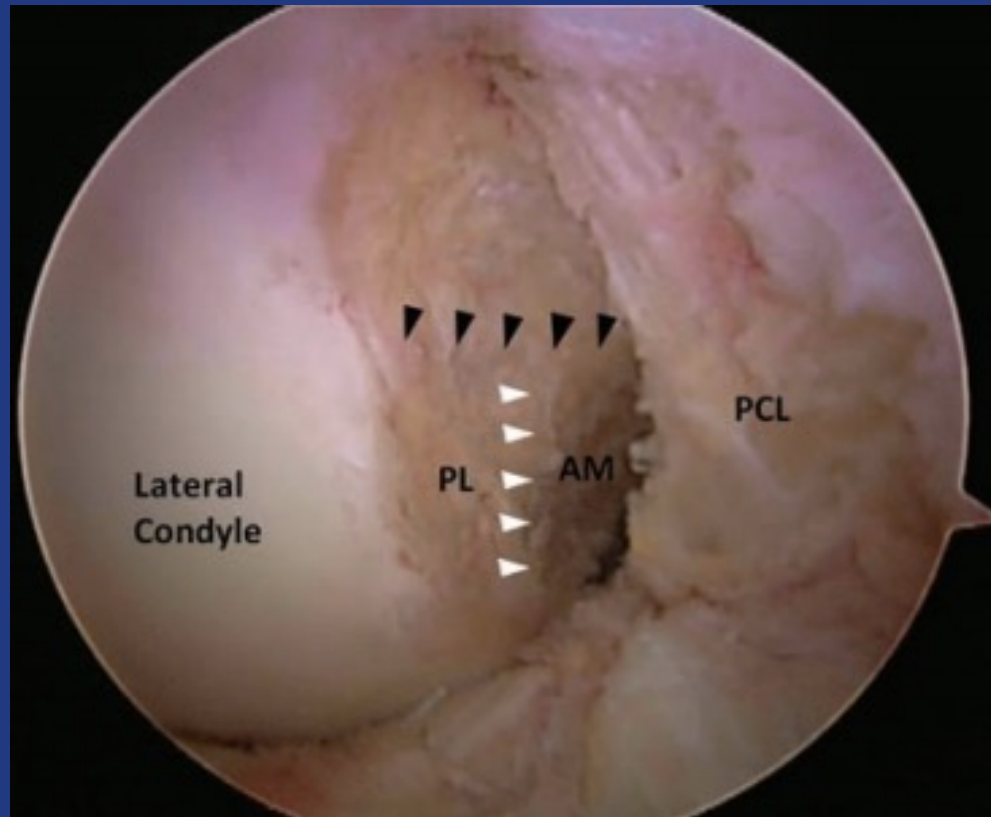


Centre of the PL bundle is 26.4%, and AM is 32.4% of length the Blumensat.

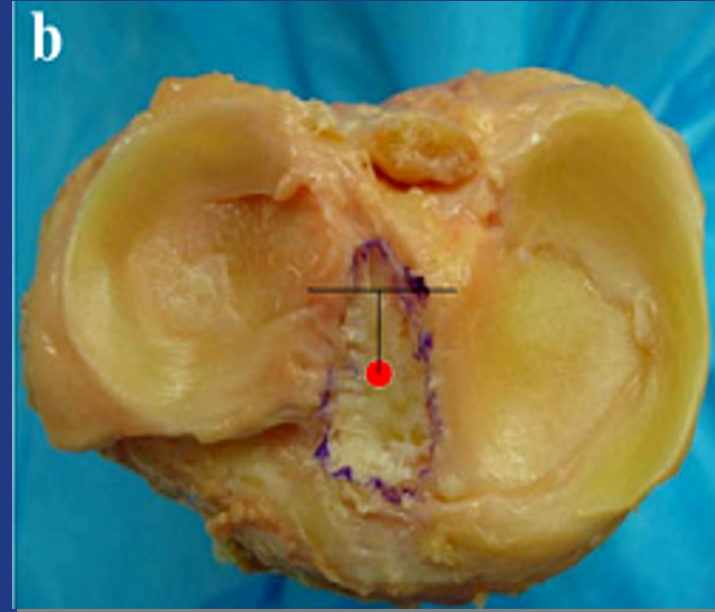
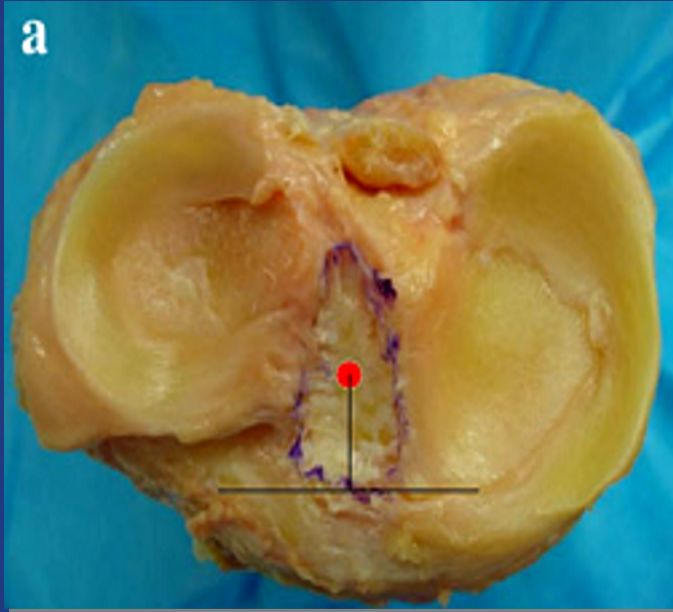
## Overview

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# ACL Femoral footprint



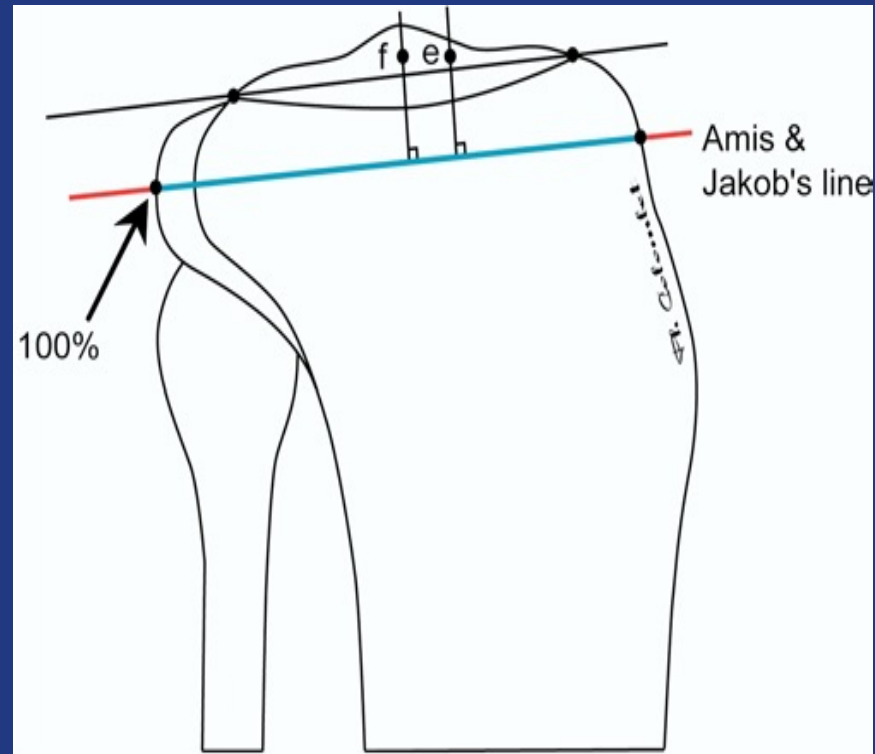
# Overview



AM: posterior transverse ligament of meniscus  $4.6 \pm 0.7\text{mm}$  ,  
anterior medial intercondylar tubercle  $8.6 \pm 1.0\text{mm}$ .

PL: posterior transverse ligament of meniscus  $13.8 \pm 0.8\text{mm}$  ,  
anterior medial intercondylar tubercle  $1.4 \pm 0.7\text{mm}$ .

# Overview

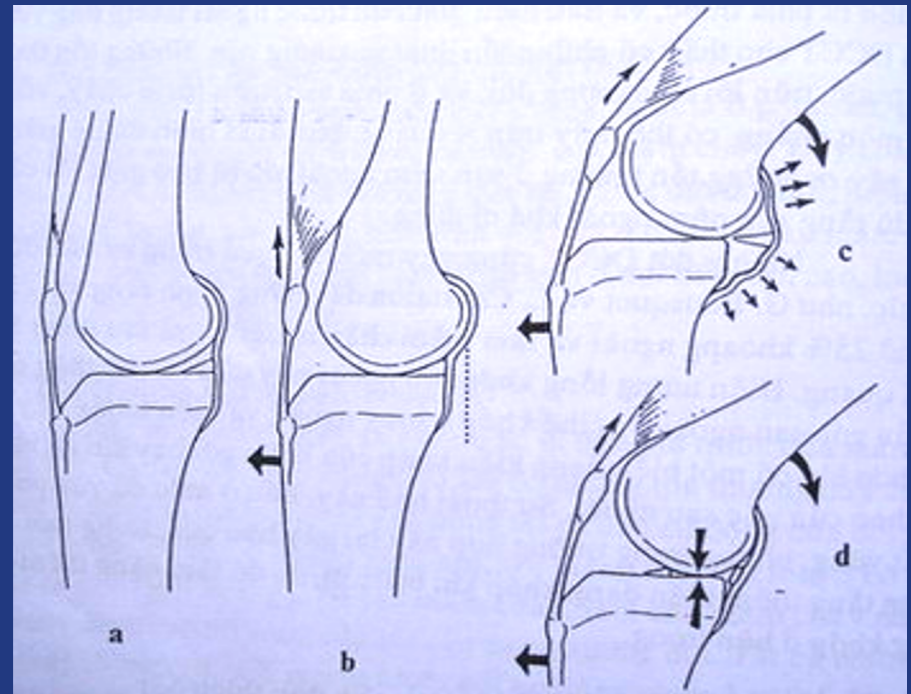
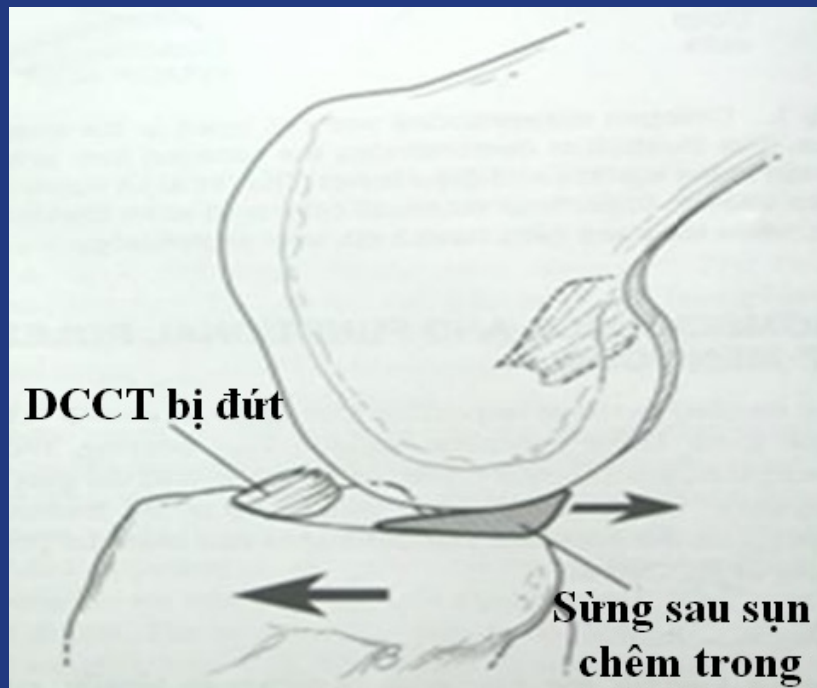


Centre ACL position: AM is 36% and PL 52% of the line from anterior to posterior.

## Overview

# Consequence ACL rupture

- Tear meniscus.
- Lesions ligament and synovial.
- Osteochondral.



# Material & method

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## **Material:**

From 06/2016 to 03/2017, at 175 Hospital, 32 patients were reconstructed ACL with Hamstring tendon.

- **Material and method**

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## **Required standard patients**

Diagnosis rupture ACL, high physical activity, under 40 ys...

## **Diagnosis by exlution**

Rupture poly-ligament, arthrosis, osteoporosis..

- **Material and method**

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## **Method study**

32 patients:

- Examination and diagnosis.
- Operation.
- Check medical document post.op.
- Examination post.op 3-6-9 months.

- **Material and method**

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## **The time of evaluation results**

Evaluation result:

- before discharged.
- post.op 3-6-9 months.

- **Material and method**

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## **Criteria for evaluation results**

- Range of motion the knee.
- Lysholm score.

- **Material and method**
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## Operation

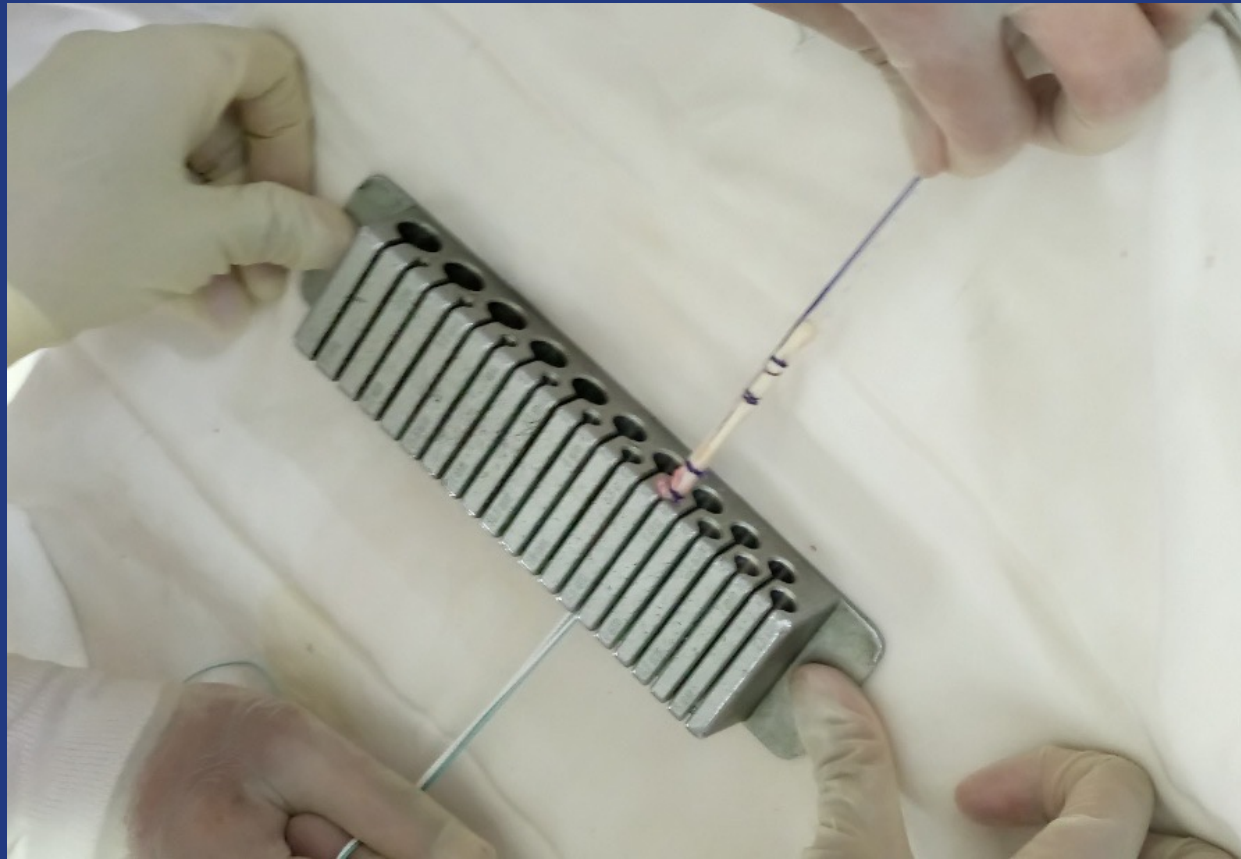


Cut Hamstring tendon

- **Material and method**

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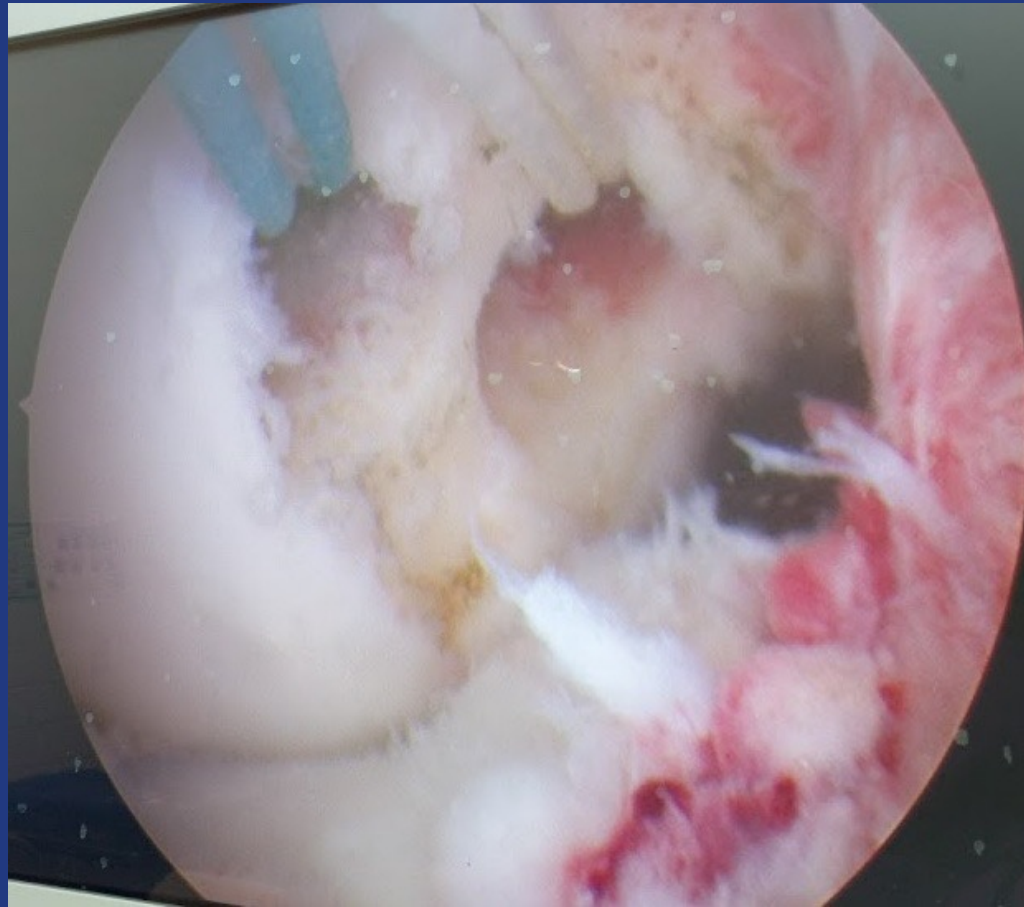
## Operation



Prepare tendon grart

- **Material and method**

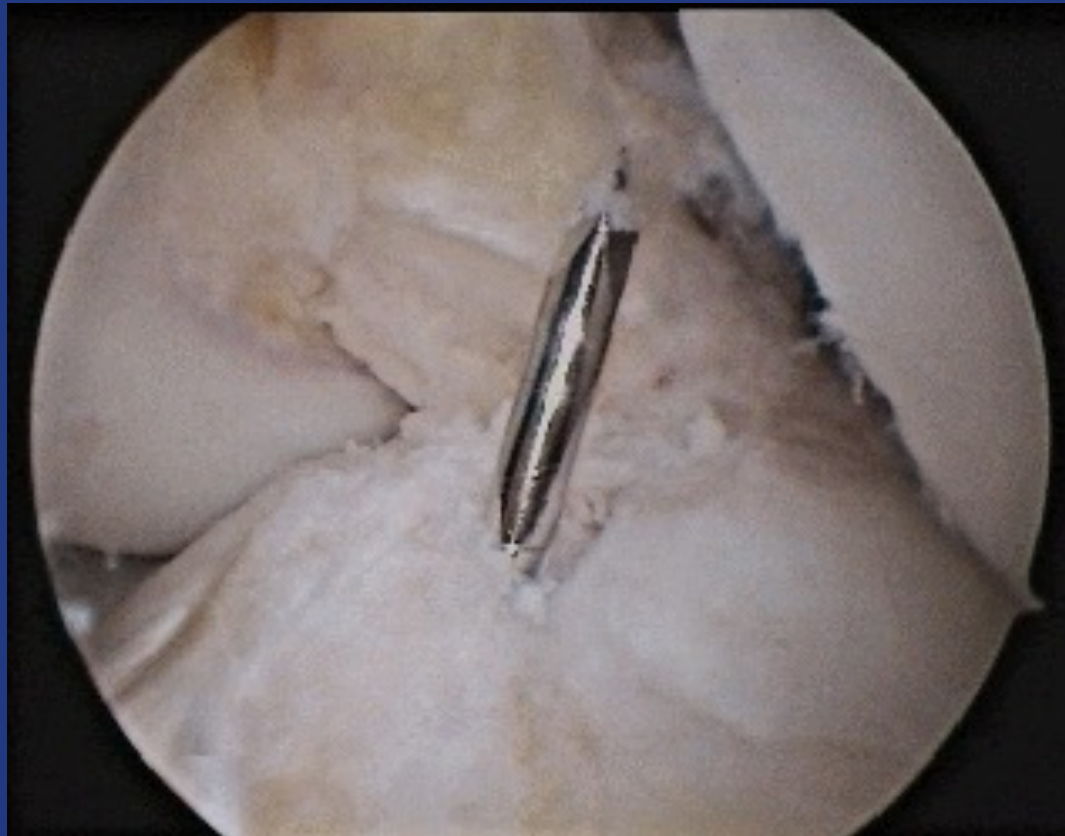
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Drill the femoral tunnel

- **Material and method**

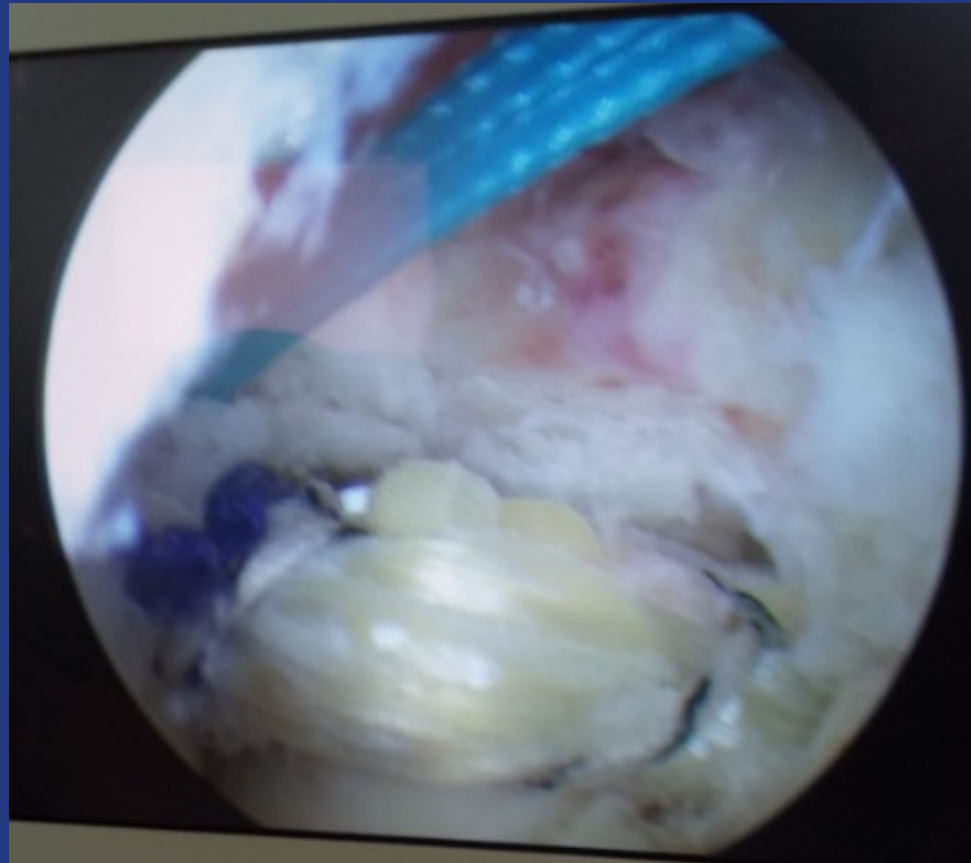
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Drill the tibial tunnel

- **Material and method**

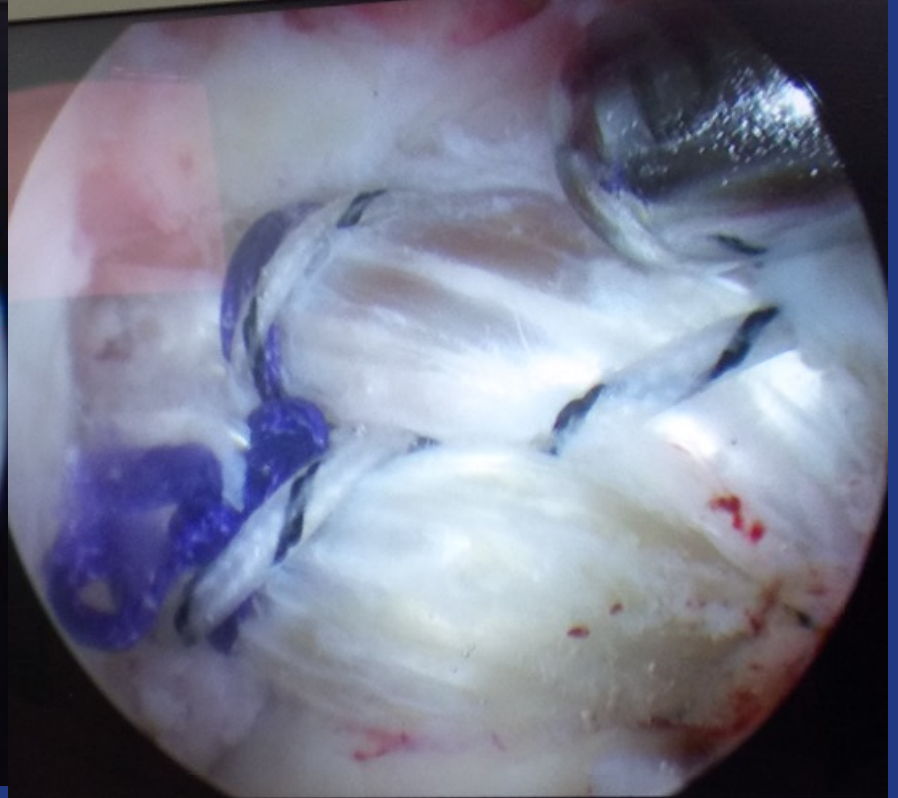
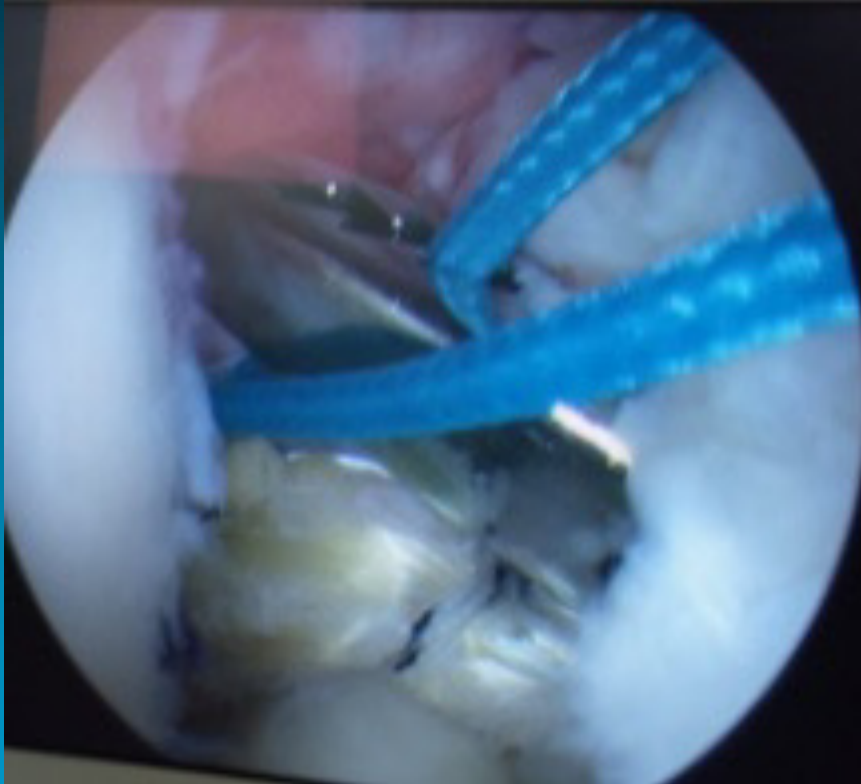
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Pull the PL bundle

- **Material and method**

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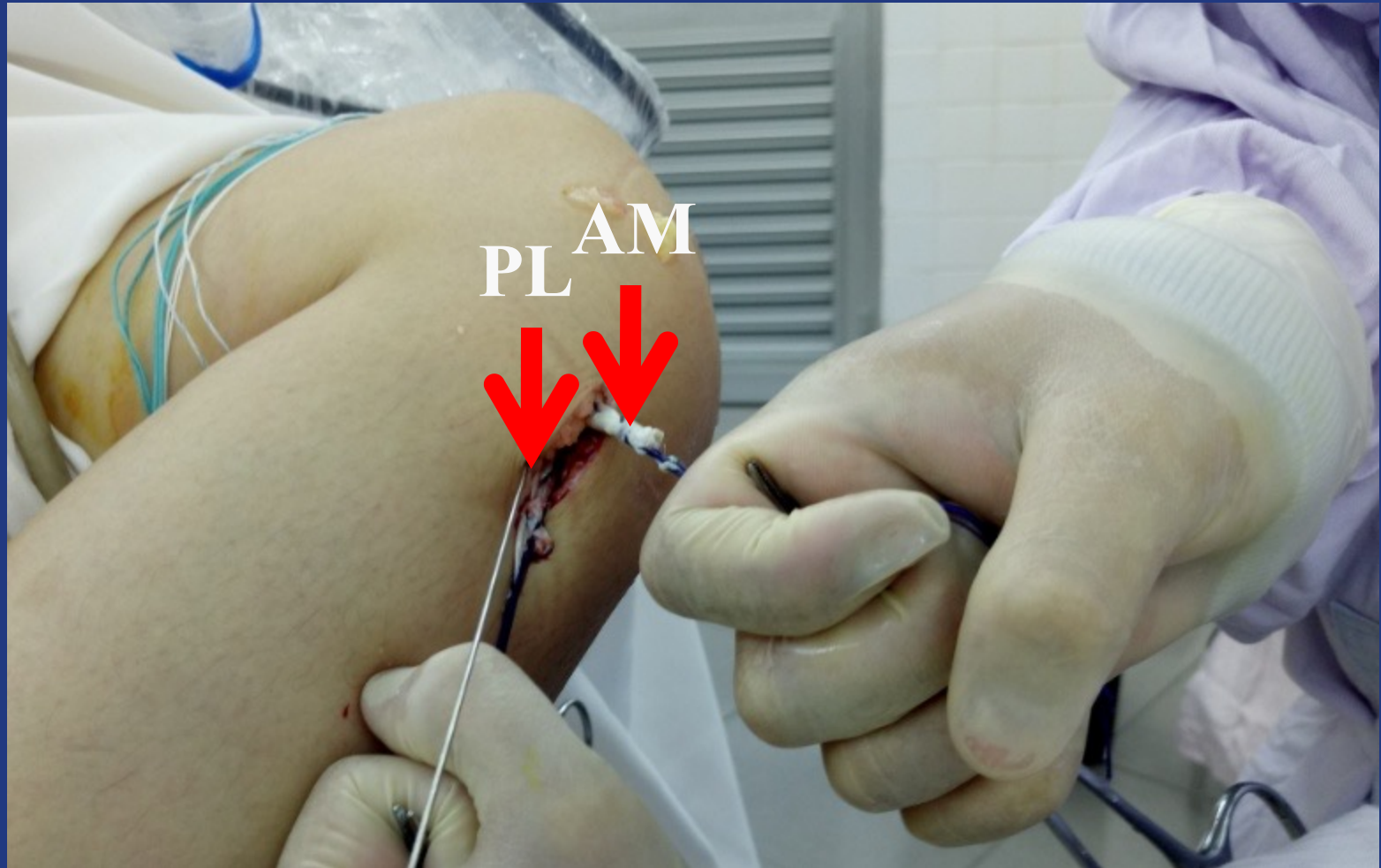


Pull the AM bundle

- **Material and method**

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## Stretch tendon



- **Material and method**
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## **Fixation bio screw**



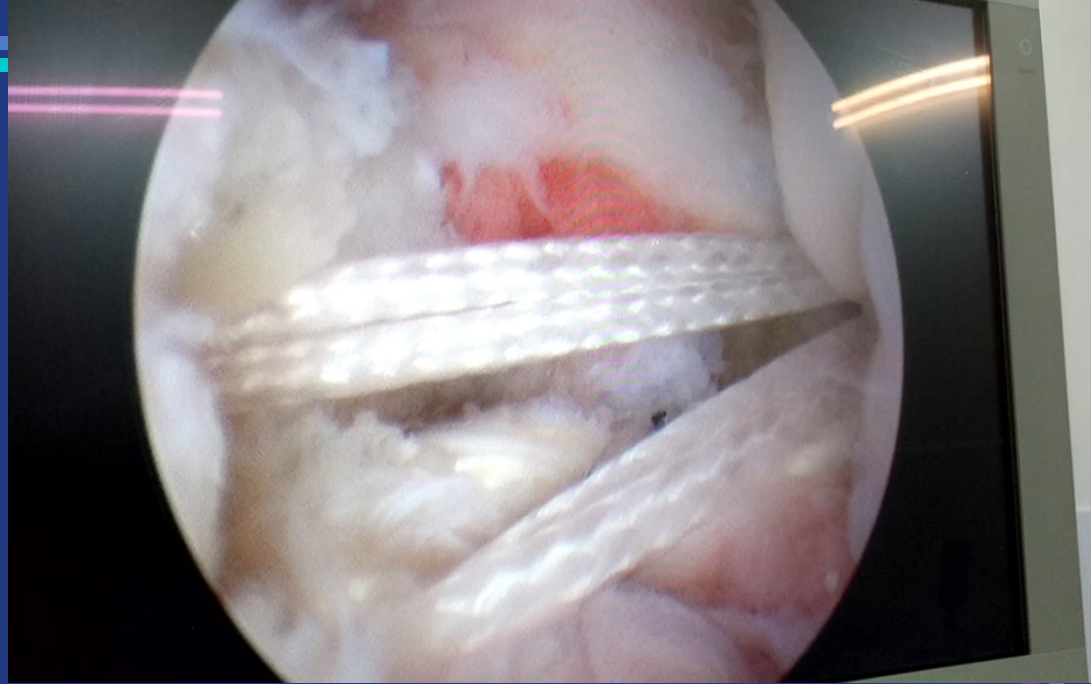
- **Material and method**

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Stretch AM tendon with extention knee 30<sup>0</sup>



# Stretch AM tendon



# RESULT & DISCUSSION

## AGE

| <i>Tuæi</i>    | <i>Tæng sè</i> |                |
|----------------|----------------|----------------|
|                | <i>Sè BN</i>   | <i>Tû lÖ %</i> |
| <20            | 3              | 9,37           |
| 21-30          | 21             | 65,62          |
| 31-40          | 8              | 25,01          |
| <i>Tæng sè</i> | 32             | 100            |

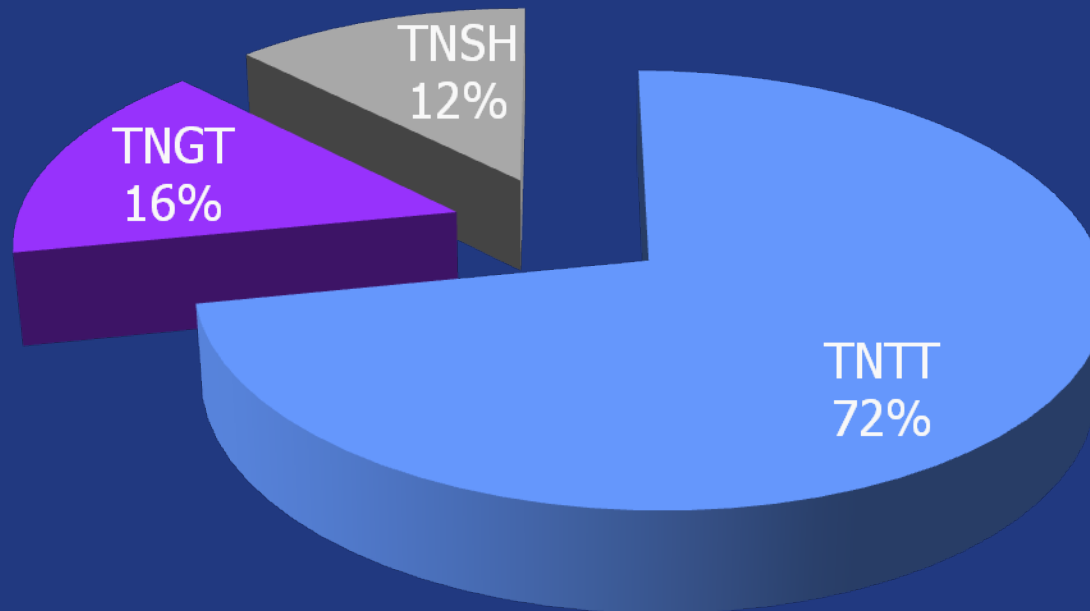
Tuổi trung bình: 27,4 tuổi ; min: 18 tuổi ; max: 40 tuổi.

Tỷ lệ nữ/nam: 3/29.

## Result & discussion

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# CAUSE TRAUMA

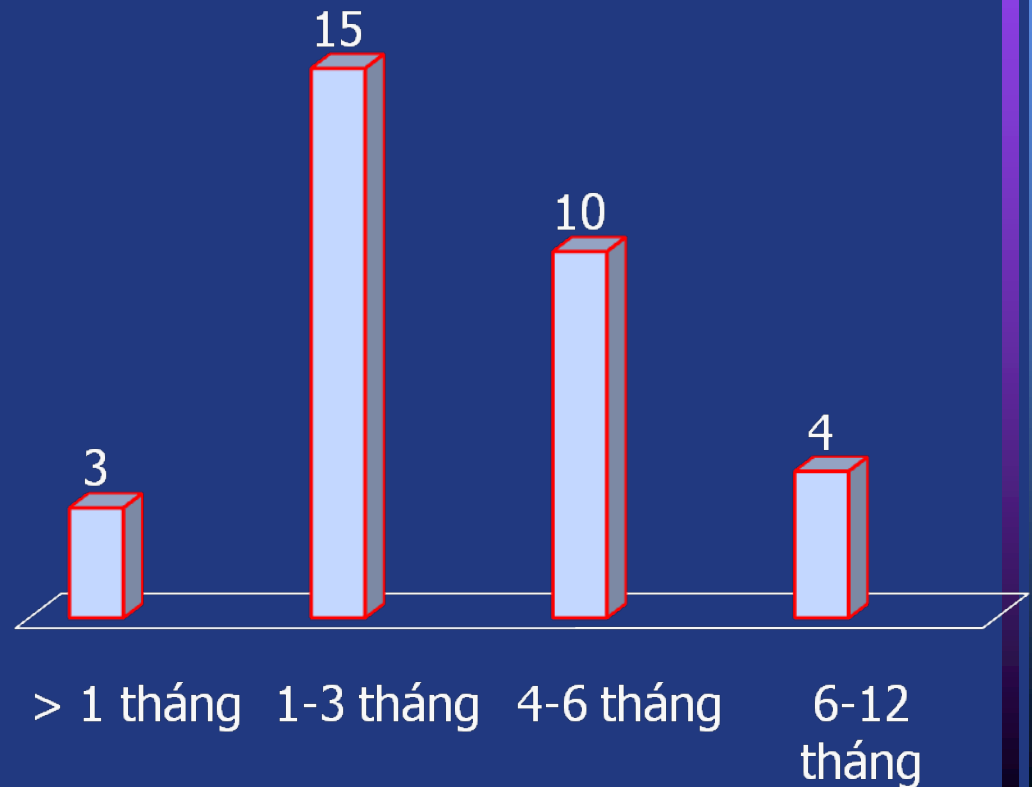


Trauma: sports 23 cas, traffic: 5, activity: 4

## Result & discussion

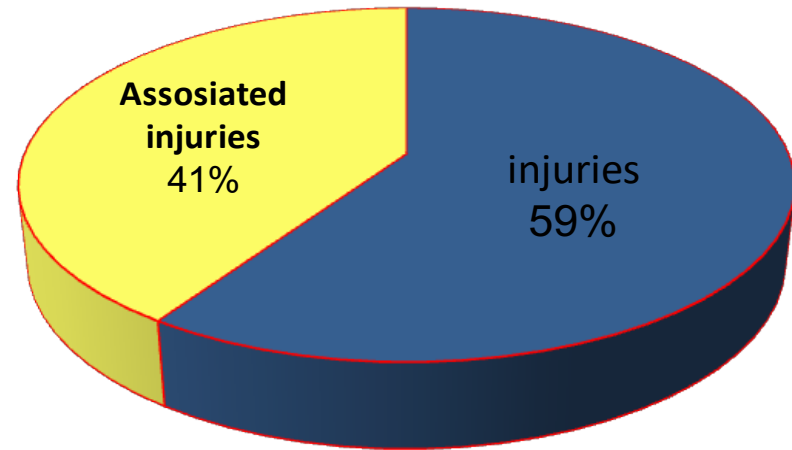
# THE TIME FOR SURGERY

| <i>Time</i>  | <i>case</i> | <i>%</i>    |
|--------------|-------------|-------------|
| < 1 month    | 3           | 9,37        |
| 1-3 months   | 15          | 46,87       |
| 4-6 months   | 10          | 31,25       |
| 7-12 months  | 4           | 12,51       |
| <b>Total</b> | <b>32</b>   | <b>100%</b> |



## Result & discussion

# INJURIES



| <i>Injuries</i>    |                              | <i>Total</i> |
|--------------------|------------------------------|--------------|
| Simple             |                              | 19           |
| Assosiated<br>(13) | Medial meniscus              | 9            |
|                    | Lateral meniscus             | 4            |
|                    | Medial & lateral<br>meniscus | 0            |
|                    | ...                          | 0            |

## Result & discussion

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# POST.OP RESULTS

(with LYSHOLM score)

| <i>Time</i> | <i>case</i> | <i>Very good<br/>(95-100)</i> |          | <i>Good<br/>(84-94)</i> |          | <i>Normal<br/>(65-83)</i> |          | <i>Bad<br/>(45-64)</i> |          |
|-------------|-------------|-------------------------------|----------|-------------------------|----------|---------------------------|----------|------------------------|----------|
|             |             | <i>Case</i>                   | <i>%</i> | <i>Case</i>             | <i>%</i> | <i>Case</i>               | <i>%</i> | <i>Case</i>            | <i>%</i> |
| 3 months    | 24          | 19                            | 79,20    | 3                       | 12,50    | 2                         | 8,30     | 0                      | 0        |
| 6 months    | 17          | 14                            | 82,35    | 2                       | 11,76    | 1                         | 5,89     | 0                      | 0        |
| 9 months    | 6           | 4                             | 66,66    | 1                       | 16,67    | 1                         | 16,67    | 0                      | 0        |

## Result & discussion

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# PORTAL



## Result & discussion

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# SIZE GRAFT



# CONCLUSION

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## TREATMENT RESULT

**Post-operation:**

**No case was infection (knee and incision).**

## Patient selection

- High physical activity.
- Not other pathologies ...
- Size graft and anatomy lateral condyle of femur.

# Rehabilitation

- **Limit the complications post-operation.**
- **Detection concurrent wounds.**
- **Improve the treatment result.**



**THANK'S YOU!**