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Transosseous wrapping technique using resorbable suture tape for fixation of osteochondral lesions in the knee:

A safe procedure without complications

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Faculty Disclosure Information

- *My disclosure is:*
- **Smith & Nephew**
- *Scandinavian knee instructional course 2025 - Speaker*

Abstract

- Solid fixation of osteochondral lesions is a surgical challenge. Rigid fixation is mandatory to obtain bony healing.
- The use of countersunk screws or bioresorbable nails often provides rigid fixation, but problems with implant loosening and/or detrimental wear on the cartilage surface is often seen.
- When fixing osteochondral lesions transosseously with resorbable suture tape, the hardware problems are avoided as the sutures dissolve within 8 weeks.

Aim

1. To present a safe and cheap method for rigid fixation of osteochondral lesions in the patella or in the femoral condyles.
2. To assess the postoperative healing using clinical data and imaging.

Material

- 25 consecutive patients (period 2017-23) who had a loose and sutureable osteochondral fragment were operated using a transosseous suture wrapping technique.
- There were 15 cases with traumatic osteochondral fragments following patella dislocation and 10 cases with symptomatic osteochondritis dissicans from the femoral condyles.
- Average age was 19 years (11 – 44).
- Follow-up period was 1-7 years.

Technical procedure

- *Transosseous K-wire drilling x 4 (6) in the periphery around the lesion, with the shuttling of 2 x 2 Vicryl tape® loops through the K-wire tunnels over the reduced osteochondral fragment.*
- *The fragment is subsequently secured by tensioning and tying the tape 2 and 2 over the cortex on the opposite side.*

The following slides show examples of the transosseous technique:

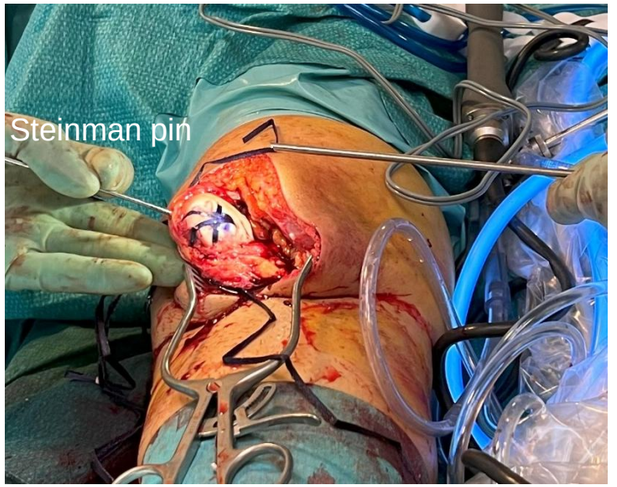
1) Osteochondral avulsion fragment fixation at the medial patella face

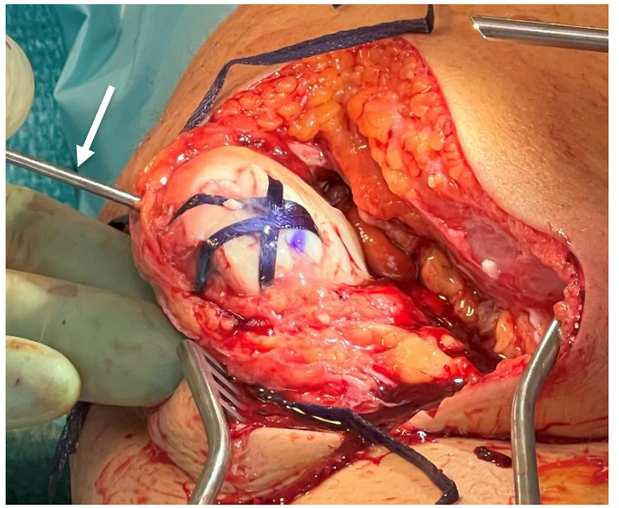
2) Osteochondritis dissecans fixation at the medial femoral condyle

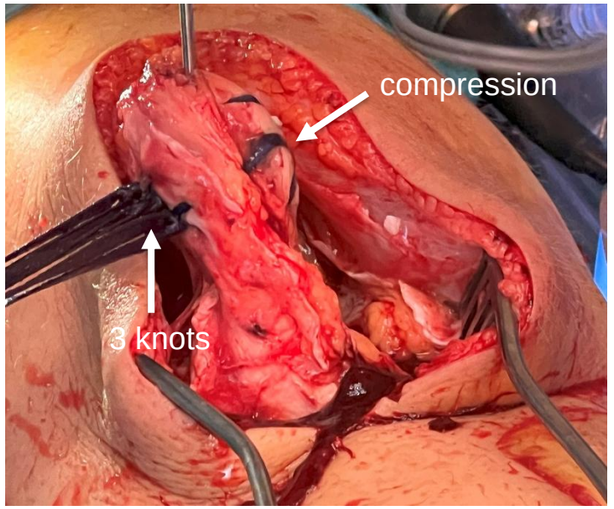
Case 21 yrs ♀

Acute patellofemoral dislocation with 2 major avulsed osteochodral fragments 18x20 mm from the medial facet of the patella.

1. Open debridement + reduction of fragment(s). K-wire drilling of 4 (5) 2,0 mm tunnels transosseous. Passing the resorbable suture tape 2 and 2 though the patella, with the free ends exiting anteriorly.
2. Tying the free end of the suture tapes 2 and 2 on the anterior side of the patella.
   In this case we have used 5 K-wire tunnels and 3 suture strands, because of the comminuted nature of the avulsed fragment.
3. Close-up of the final fixation seen from the articular side. A Steinman pin is used to hold the patella temporary.
4. Medial view of the patella with the final fixation. The excess tape is cut away, and the sutures are resorbed within 4 – 8 week; enough for healing of the fragment(s).







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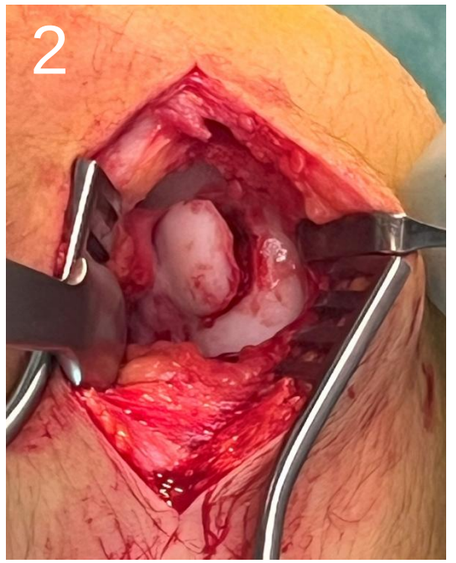
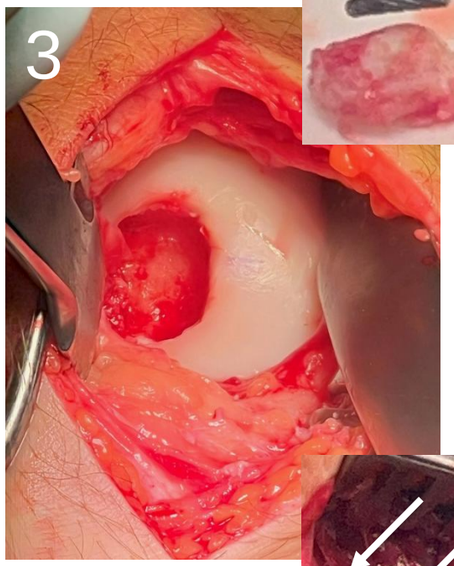
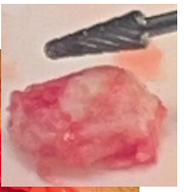
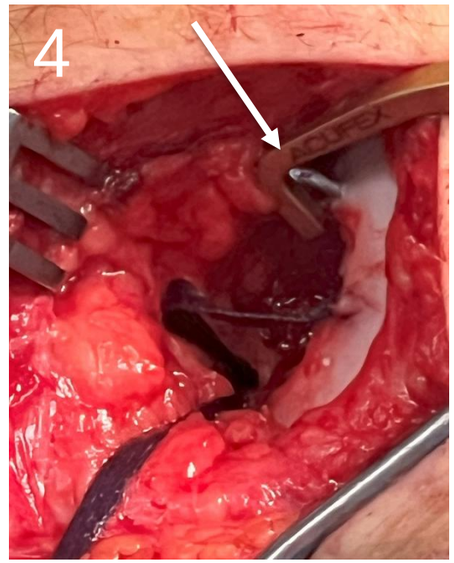
Case 17 yrs ♂
OCD 12x13 mm on the central part of the right medial femoral condyle.

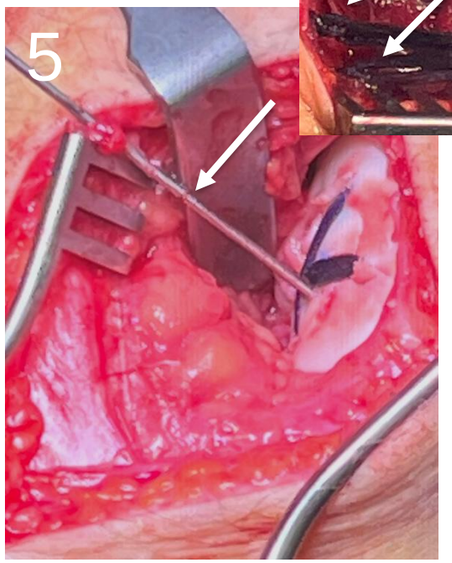
1. CT-mapping
2. Open medial arthrotomy + superomedial access to femur under the vastus medialis.
3. Open reduction and debridement of both the OCD fragment and the femoral socket.
4. K-wire drilling x 4 at the edge of the femoral socket using a ACL guide from the superomedial access. The drilling can be done both retrograde (as in this case) or antegrade using a parallel K-wire guide) Passing the resorbable suture tapes 2 and 2 though the femoral condyle to the superomedial access,and tying the free ends of the suture tape over the bony cortex
5. A temporary K-wire can be used to hold the OCD fragment while tying the 2 suture strands. Fibrin glue can be used optional as additional fixation.











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Methods

- Postoperative medical records and imaging were retrospectively evaluated for healing and complications.

- ***Clinical rating:***

A) Good / Excellent:	No or slight pain, swelling, crepitus
B) Acceptable:	Moderate pain, swelling, crepitus
C) Failure:	Severe pain, swelling, crepitus and/or cartilage re-operation

- ***Healing on MRI:***

A) Good /Excellent:	Total / Subtotal healing
B) Acceptable:	Partial healing and/or bone-bruise
C) Failure:	No healing and/or reoperation with removal of the OCL fragment.

Results

Clinical results	Good	Acceptable	Failure
Patella OCL *n = 15*	67 %	33 %	0 %
Femoral OCD *n = 10*	67 %	33 %	0 %

MRI results	Good	Acceptable	Failure
Patella OCL *n = 5*	60 %	40 %	0 %
Femoral OCD *n = 5*	60 %	20 %	20 %

Complications n = 5		Re-operation because of stiffness
Failures	*n = 1*	Sceduled for mega OATS

Conclusions

- The transosseous wrapping technique using resorbable suture tape is a reliable method for the fixation of osteochondral fragments in the knee and provides good clinical results and a high healing rate.
- No adverse effects have been registered.
- The method is now used routinely for fixation of osteochondral lesions at our clinic.

References

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