

3d advanced course on knee surgery
Val d'Isère 2010


Minimal invasive harvesting of BPTB graft.




R.Seil

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Why a minimally-invasive harvesting technique ?



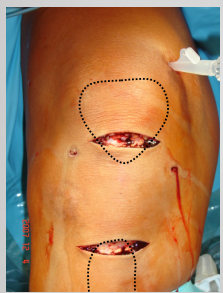
From: Kartus J. Am J Sports Med. 2000

Anterior knee pain 4 – 60%

Plancher KD, JBJS-A, 1998
Shaieb MD, Am J Sports Med, 2002


- Injury of infrapatellar branch of saphenous nerve
- Tendinopathy
- Painful scarring - sharp edges of TTA harvesting area
- Cosmetic appearance

Technique




- 2 horizontal incisions :
Distal patellar pole
Tibial tuberosity
- 3 cm long

Technique



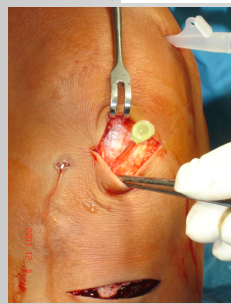
- Horizontal bursal incision

Technique



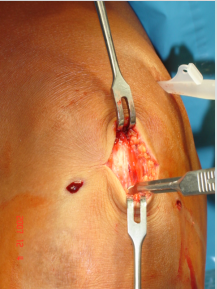
- Vertical bursal incision
→ allows for perfect bursal closure at the end of the procedure
- Horizontal incision of peritendon (retinacular layer)

Technique



- Localisation of distal patellar pole


Technique



- Mark bone resection area

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Technique



- Small oscillating saw
- 20 mm bone block

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Technique



- Harvest with osteotome

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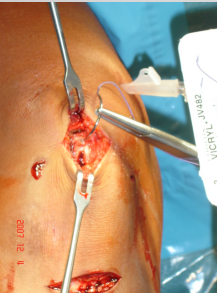
Technique



- Drill 2 mm tunnel for suture passing

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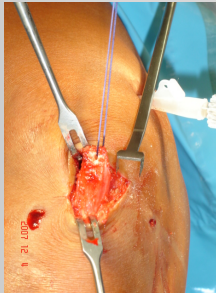
Technique



- Arm proximal bone block with #2 Vicryl suture (2 x)

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Technique



- Special knife with 2 parallel blades (9 mm; Arthrex)

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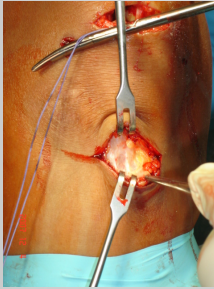
Technique



- Cut tendon underneath peritendon

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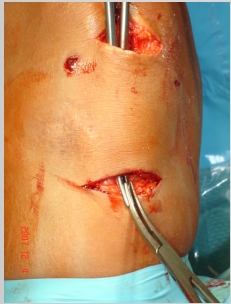
Technique



- Distal soft-tissue preparation
(horizontal incisions of bursal and retinacular tissue – generally less well defined as on patella)

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Technique



- 2 curved clamps:
 - 1st = guide-clamp (proximal-distal)
 - 2nd = suture-passing clamp (distal - proximal)

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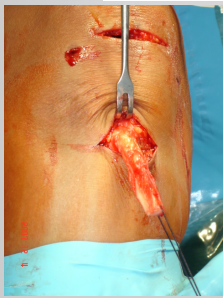
Technique



- Pull on suture (patellar bone block)


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Technique



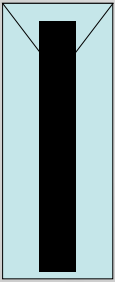
- Distal bone block preparation with oscillating saw
- Drill 2 mm hole (2 x)
- Arm with 2 #2 Ethibond sutures

Technique

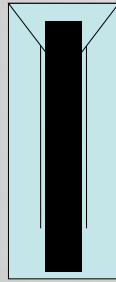


- Longitudinal incision 1 mm from harvesting site & closure

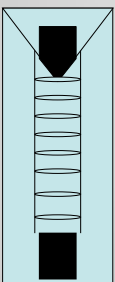
Technique



Technique




Technique



- Complete closure of harvesting site with thin tendinous layer (Vicryl # 2-0)

Personal experience



- N > 300
- Lasts 10 minutes
- Hardly any donor-site problems
- Very rare cheloid formation
- Sensory disorders improved
- Complete gap filling

Patellar Tendon Graft Harvesting Using Horizontal Incisions for Anterior Cruciate Ligament Reconstruction
 Allan K. Mishra, M.D., Gary S. Fanton, M.D., Michael F. Dillingham, M.D., and Tamara J. Carver, R.N.

Technical note

Immediate postop. 6 months 1 year

Mishra AK, Arthroscopy, 1995

Techniques for Reducing Anterior Knee Symptoms after Anterior Cruciate Ligament Reconstruction Using a Bone-Patellar Tendon-Bone Autograft
 Eiji Tsuda, MD, Toshiro Okamura, MD, Yasuyuki Ishibashi, MD, Hiroaki Ochiai, MD, and Satoshi Oki, MD

- 2 horizontal incisions
- Horizontal incision of peritendon
- Filling of bone defects
- Tendon left open
- 17 % anterior knee pain
- No control group

Tsuda E, Am J Sports Med, 2001

Mini-incision Patellar Tendon Harvest and Anterior Cruciate Ligament Reconstruction Using Critical Bony Landmarks
 Mark L. Purnell, MD and Andrew J. Larson, BSME

Purnell M, Sports Med Arthrosc Rev 2009

Comparison of Traditional and Subcutaneous Patellar Tendon Harvest
 Jüri Kartus,* MD, PhD, Lars Ejerhed,* MD, Ninni Sernett,* RPT, Sveinbjörn Brandsson,‡ MD, and Jon Karlsson,‡ MD, PhD

- 2 vertical incisions
- Subcutaneous harvesting

Area of insensitivity:

Traditional harvest group: 24 cm²
 Subcutaneous harvest group: 0 cm²

Kartus J, Am J Sports Med, 2000

Double-incision mini-invasive technique for BTB Harvesting: Its superiority in reducing anterior knee pain following ACL reconstruction
 F. Gaudot*, J.-B. Leymarie, O. Drain, P. Boirenouit, O. Charrois, P. Beaufils

Gaudot F, Orthopaedics & Traumatology: Surgery & Research, 2009


Double-incision mini-invasive technique for BTB Harvesting: Its superiority in reducing anterior knee pain following ACL reconstruction
 F. Gaudot*, J.-B. Leymarie, O. Drain, P. Boirenouit, O. Charrois, P. Beaufils

Prospective controlled trial
 2 vertical incisions; tendon left open
 FU 33 months

N	Double incision 21	Single incision 19
SF 36	id.	id.
IKDC		
Anterior knee pain	4 (19%)	11 (58%)
Normal knee walking	11	3
Sensory disorders	9	17

Gaudot F, Orthopaedics & Traumatology: Surgery & Research, 2009

TKA after horizontal incisions ?



Probably no negative effects in the long-term.

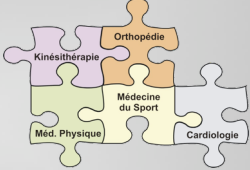

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Conclusion

Horizontal double-incision harvesting technique

- Allows for good gap closure
- Better cosmesis
- Less sensitivity problems
- Less anterior knee pain
- No negative effects in the long-term

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