



Patient self-demonstration of the anterior drawer test in an ACL deficient knee

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DESCRIPTION

A 19-year-old male presented with a rupture of the previously reconstructed anterior cruciate ligament (ACL) of his right knee. He had sustained his initial injury 4 years previously while playing soccer and had undergone an ACL reconstruction with an ipsilateral patella tendon graft 2 years previously. He had injured his knee again playing soccer 1 year previously. On examination he was positive for Lachman's test, the anterior drawer test and the pivot shift test. The patient did not have hyperlax joints and the knee was otherwise stable on examination. Unusually he was able to self-demonstrate the anterior drawer test with translation of the tibia anteriorly from the normal position (figure 1 and video 1). We believe that contraction of the gastrocnemius muscle (superficial posterior compartment) pushes the tibia anteriorly, while contraction of extensor hallucis longus and extensor digitorum muscles (anterior compartment) pulls the tibia anteriorly on the fixed foot. This combined action seems to produce the observed anterior tibial translation. The tibia reduces to its normal position with relaxation of these muscles and brief contraction of the hamstring muscles, namely the

semimembranosus, semitendinosus and biceps femoris. The quadriceps muscle remained inactive throughout this abnormal motion. No other significant internal derangement of the knee was noted on arthroscopy before revision reconstruction of the ACL using ipsilateral hamstring tendon grafts was undertaken. The incidence of rupture of a reconstructed ACL can be up to 12%; however, the risk of rupture after 1 year is the same as for the contralateral ACL.¹



Video 1 Video showing self-demonstration of the anterior drawer test.



Figure 1 Clinical photograph showing self-demonstration of the anterior drawer test; the two black arrows show translation of the tibia anteriorly (B) from the normal position (A).



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Learning points

- ▶ The primary function of the ACL is to prevent anterior translation of the tibia. It acts as a secondary stabilizer against internal rotation of the tibia and valgus angulation at the knee.
- ▶ Lachman's test, the anterior drawer test and the pivot shift test are the most common clinical tests used to assess cruciate ligament instability.
- ▶ The incidence of rupture of a reconstructed anterior cruciate ligament (ACL) can be up to 12%; however, the risk of rupture after 1 year is the same as for the contralateral ACL.

Contributors PE examined the patient and KJM treated the patient. Both authors wrote the manuscript and approved it for publication.

Competing interests None.

Patient consent Obtained.

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- 1 Salmon L, Russell V, Musgrove T, *et al.* Incidence and risk factors for graft rupture and contralateral rupture after anterior cruciate ligament reconstruction. *Arthroscopy* 2005;21:948–57.

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