



Figure 32-2. (A) Drawing of a graft placed too far anterior (1) revised with a graft (2) placed further posterior in a more anatomic location. (Reprinted with permission from Bach BR Jr, Mazzocca A, Fox JA. Revision anterior cruciate ligament surgery. In: Grana WA, ed. *Orthopaedic Knowledge Online*. Rosemont, IL: American Academy of Orthopaedic Surgeons; 2003.) (B) Lateral radiograph of a tunnel placed too anterior.

tunnel (Figure 32-2A) will lead to roof impingement and a flexion contracture. A tunnel placed too far posterior in the tibia will lead to a vertical graft that functions well to limit anteroposterior (AP) translation but functions poorly in terms of rotational stability. A medialized tibial tunnel will lead to graft abrasion from impingement on the PCL, and a lateral tunnel may impinge on the lateral notch. While proper femoral tunnel location is still debated, the most common error in tunnel placement is a femoral tunnel placed too anterior (Figures 32-2A and 32-2B), which leads to excessive tension on the graft in flexion and ultimately to failure. Femoral tunnel placement too vertical or too close to the center of rotation of the femur (Figure 32-3) will not reproduce normal knee kinematics, as rotational instability will remain. (Lachman test may be normal, but pivot shift test will be abnormal.)

With the single-incision endoscopic transtibial technique, surgeons may underestimate the effect that the tibial tunnel position has on femoral tunnel placement. Occasionally, I will place the femoral tunnel through an accessory inferomedial portal in order to locate it exactly where I want, rather than being restrained by the orientation of my tibial tunnel.

While proper tunnel placement can be difficult, nearly every step of ACL reconstruction surgery represents an opportunity for surgeon error. This begins with graft harvest. During this important step, the graft can be damaged, leading to weakness and failure. With patellar tendon grafts, an inadequate construct may be harvested. Attempts should be made to obtain a 10-mm-wide graft whenever possible, with bone plugs that are