ACL Reconstruction Called Safe in Kids, Teens

BY TIMOTHY F. KIRN
Sacramento Bureau

KEYSTONE, COLO. — Growing adolescents can undergo anterior cruciate ligament repair safely, and perhaps should have the surgery to avoid the possibility of later problems, George A. Paletta Jr., M.D., said at the annual meeting of the American Orthopaedic Society for Sports Medicine.

Recommendations for the management of anterior cruciate ligament (ACL) injury in the skeletally immature patient have varied, but Dr. Paletta's thorough investigations, and case series of patients, have convinced him that it is possible to perform a reconstruction without compromising the tibial growth plate and creating a leg length discrepancy, he said.

The natural history of an ACL injury in a skeletally immature patient is that the majority continue to have knee instability and many develop meniscal tears, said Dr. Paletta, chief of sports medicine service at Washington University, St. Louis. In one series of 38 junior high athletes with ACL injuries who did not have ACL surgery and were followed for a minimum of 2 years, 27 developed meniscal tears (Am. J. Sports Med. 1994;22:478-84).

That is to say nothing of what could be happening to these children's knees in the even longer term, Dr. Paletta said.

And keeping the child or adolescent out of hazardous sports is not really the answer because most who reinjure their knees do so not during an organized activity but during recess or some other time when they are just being exuberant.

On the other hand, animal studies have shown that one needs to damage a greater proportion of the physeal plates than is normally damaged during an ACL reconstruction to create growth arrest. And in a series of growing athletes who have undergone reconstruction, 90% or better have reportedly returned to sports.

In his own series of patients, yet to be published, Dr. Paletta performed ACL reconstruction in 29 patients aged 10-13 years by using either an over-the-top technique that spared the physeal area of the femur or a technique that drilled through the physeal areas of the tibia and the femur.

The natural history of an ACL injury in a young patient is that most continue to have knee instability and many develop meniscal tears.

At a minimum of 2 years' follow-up, none of the patients had any radiographic evidence of premature closure of the growth plates, and all but two patients (one from each group) had returned to sports participation at the same level as before their injury.

Though the results from both techniques were similar, pivot-testing suggested the complete transphyseal technique produced somewhat better stability, Dr. Paletta said.

In another series of Dr. Paletta's patients, 49 preadolescents (Tanner stage 0, 1, or 2) with ACL tears were treated with complete transphyseal reconstruction, he said.

Again at a minimum follow-up of 24 months (with an average follow-up of 40 months), none of the patients had a leg length discrepancy greater than 1 cm and none had an angular deformity of more than 5 degrees.

Twenty-seven of the patients had reached skeletal maturity by the time of the last examination.

Forty-seven of the 49 patients reported no instability, and 45 of the patients had returned to sports at or above the same level as before their injury. Only one patient had a rerupture, an injury that occurred 6 years after the surgery.

On the basis of his experience, Dr. Paletta said his recommendations for management would be to perform transphyseal hamstring reconstruction for isolated ACL insufficiency for male patients who are Tanner stage 1, 2, or 3, and for premenarcheal females, if there is functional instability.

If there is no functional instability, Dr. Paletta would recommend treating patients conservatively.

For older patients with isolated ACL insufficiency—males Tanner stage 4 or 5, and postmenarcheal females—he would recommend reconstruction.

He would also recommend reconstruction for any patient if there also was meniscus damage. ■