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ORTHOPEDICS UPDATE About 26,000 surgeons, exhibitors and allied health professionals gathered in New Orleans last month for the annual meeting of the American Academy of Orthopedic Surgeons (AAOS). This week's coverage focuses on pediatric orthopedics and knee research. Highlights include a new Canadian treatment for osteogenesis imperfecta, a 50-year study that dispels myths about scoliosis, the latest on allograft meniscus transplantation, and a Canadian study that shows anterior cruciate ligament tears run in families. The *Medical Post*'s Andrew Skelly was at the meeting and files these reports.

Leg rod helps strengthen kids' fragile bones

Canadian team's telescopic rod surgery is less invasive, less painful

By Andrew Skelly

NEW ORLEANS – A telescopic rod invented by a pair of Canadian orthopedic surgeons shows promise in strengthening the femurs of children with osteogenesis imperfecta, potentially with fewer complications and reoperations than the traditional technique.

The device is attracting attention from as far away as Kuwait, Peru and Sweden. It was developed by Drs. François Fassier and Pierre Duval, along with Pega Medical, a Montreal firm specializing in orthopedic devices.

In an interview at the meeting here, Dr. Fassier, a pediatric orthopedic surgeon and chief of staff at Shriners Hospital for Children in Montreal, said he even

travelled to Slovenia last year to perform the operation on a girl whose family had heard about the operation through word of mouth.

"Everything went very well and I had a Christmas card from the family saying that she's running now," said Dr. Fassier, who is also an associate professor of surgery at McGill University.

The Shriners Hospital is a world centre for the treatment of osteogenesis imperfecta (OI), caring for more than 250 patients with the rare genetic disorder. The multidisciplinary team includes a pediatrician, geneticist, orthopedic surgeon, physical and occupational therapists, a nurse and social worker.

The clinic is also known for Dr. Francis Glorieux's pioneering use (starting in 1992) of bisphosphonates to increase bone density in children with OI.

The goal of rodding is to correct deformed or fractured bone and protect against future fractures. Children typically undergo the surgery at 18 months to two years, when they first try to stand. Telescopic rods that elongate during growth offer longer lasting protection and have been used for decades.

But the traditional system requires incisions at both ends of the femur to insert the parts of the rod, Dr. Fassier said. "What is the point of opening a knee joint in a patient who may develop knee joint problems in future?

"With the new rod, it's like any femoral rod—everything is done from the top. And osteotomies (to straighten deformed bone) whenever possible are done through the skin, through 2 mm incisions." The less invasive approach also reduces blood loss and post-operative pain, he said.

He and Dr. Duval, an orthopedic surgeon at Brôme-Missisquoi-Perkins Hospital in Cowansville, Que., started developing the new rod in the mid-1990s and began implanting it in March 2000.

The steel rod consists of a solid "male" component with a screw at the distal end and a hollow "female" component with a screw at the proximal end. After reaming of the intramedullary canal and alignment of the bone, the male rod is driven distally and screwed into the distal epiphysis. The female rod is then slid over the male rod and locked proximally into the greater trochanter.

The child is put in a posterior splint for three weeks instead of the usual six weeks of immobilization. After the cast is removed and replaced by a knee-ankle-foot orthosis, intensive physiotherapy can start.

At the meeting, Dr. Fassier presented results at an average followup of 14.7 months in 21 patients who received 31 rods.

At followup, 17 of the children were classified as household (nine), community (four) or therapeutic ambulators (four). There were no fractures, but this may also have been due to bisphosphonate therapy.

The complication rate was 32% (10 of 31 rods) and the reoperation rate was 16% (five rods). Complications included protrusion of the male rod into the knee joint and migrating, nontelescoping or broken rods.

Dr. Fassier said these figures compare favourably with those reported in the literature for telescopic rods—a 39% to 72% complication rate and a 10% to 40% reoperation rate—and at least some of the complications were related to the learning curve. Precise placement of the male rod in the distal epiphysis is crucial.

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