

Inventor of Fassier-Duval rod answers questions about the efficiency of the rod

In February, 2003, the U.S. Food & Drug Administration (FDA) approved the Fassier-Duval Telescopic Intramedullary Rodding System (F-D rod) for use in OI-related rodding surgery. At that time, it was approved for use in children 18 months of age or older to repair the femur, tibia or humerus.

The F-D rod was designed for elongation during growth. It features a significant new design that anchors the ends of the rod without damaging the growth plate or requiring a special opening of the knee. This results in less invasive surgery and often quicker healing. The F-D rod system is meant for growing children and is not useful in adults except as internal support during bone lengthening.

The F-D rod is now available in many countries besides Canada and the U.S. Because it requires a special surgical technique that is quite different from other rods, surgeons must receive special training in its use. To date over 50 surgeons worldwide (and their residents) have received training in the use of the F-D rod.

Since 2000, close to 500 F-D rods have been implanted. Approximately 95% were in children with OI, and 5% were used for other indications. The F-D rod is not indicated for all types of pediatric fractures, but is gaining acceptance as a tool to treat some other disorders, such as when patients have bone tumors or need bone lengthening.

The original research suggested that the F-D rod had a lower rate of complications. Following the second anniversary of FDA approval, we asked Dr. Fassier whether this continues to be true as the rod receives wider use. He stated that so far, although some rods have migrated or become displaced, the re-operation rate is low with the F-D rod.

Over the years, telescoping rods have been particularly helpful in treating the long bones of the leg, especially the femur, more than the humerus in the arm. Dr. Fassier reports that “the number of femoral rodding surgeries still outnumber both the tibial and humeral surgeries. However, since the incorporation of the new series (of F-D rods), things are changing rapidly.”

“I have to admit that even I had some reservations about treating tibiae with telescopic F-D rods,” Fassier said. “Especially after all the problems reported with other systems. Today my colleagues in several U.S. centers are ahead of me in the number of tibiae treated.”

“It is nevertheless important to underline that is it the combination of bisphosphonate-treated bone and the F-D rod that seems to work in the tibia,” he continued. “The F-D rod alone would not give good results, and this is why I was a little reluctant to use it.”

Experience tells us that when any new piece of sophisticated technology goes into general use it often needs some adjustments in the first year or two. Dr. Fassier reported on improvements in the F-D rod since its introduction.

In 2003, the F-D rod came in a limited range of sizes. This made it more difficult to use in younger children and those with narrow diameter bones. In 2004, new implant types were added to the line, making it possible to get a better fit for small bones, especially in the tibia and humerus.

Furthermore, surgical instrumentation has also been developed for use in revision surgery, when a rod must be changed. Suggestions for additional modifications come from the orthopedic surgeons using the F-D rod and a review of case histories. In the future, further modifications may be made to the screw end of the rod itself.

Even the best-designed telescoping rod may need to be replaced due to migration, failure to elongate, growth or injury. Dr. Fassier reports that this is the first question that comes up every time he presents the system to a new audience.

“I believe there is a complimentary effect between the F-D rod and the bisphosphonate treatment that makes the surgeries more successful overall,” he said.

“In addition, there is still a controversy with regards to the need for changing a

Continued on page 20

**INFO TO
HELP YOU
MANAGE
YOUR
HEALTH**



Dr. Fassier, inventor of the F-D rod.

INFO TO HELP YOU MANAGE YOUR HEALTH

F-D ROD Continued from page 11

telescopic rod that has completely elongated,” he explained. “I do not exchange rods in patients who have a straight bone and do not break, but I know colleagues who do not support this attitude.”

“But in the same spirit that moved us to develop a better device, we also developed specific instrumentation to use when revising the F-D rods,” he added.

In the initial FDA approval statement it was reported that the installation technique for the F-D rod offered an improvement over the more invasive technique common to other rodding systems. However, not enough revision cases have been reported to provide a clear picture. Dr. Fassier stated that “it is obvious that not having to open the knee joint remains a major advantage, and whenever the first surgery can be done percutaneously, the revision is easier.”

Data presented at the International Science Meeting in June indicated that complications with the F-D rod were similar to or less than other comparable rodding surgeries. No infections and no growth arrest due to damage to the growth plates were reported in this study. So far, the reoperation rate is lower than with comparable rods. Complications include migration of the rod, bending due to trauma, and failure to telescope. Experience shows that accurate fixation of the rod at both ends is crucial to proper telescoping.

Although the F-D rod is a major improvement in OI treatment, it is not always the best choice.

“I still use non-telescoping rods,” Fassier said. “The F-D rod is not to be used indiscriminately in every single case. Far from that, I am the first person to set the F-D system to the side when my judgement tells me the patient will be better treated in a different way.”

For example, Type III OI with “popcorn” physes have little growth potential. Regular Rush rods are often necessary, according to Fassier. **OI**

*Additional information about rodding surgery and making an informed choice about which type of rod to use is included in “Chapter 6: Surgical Management of OI” in the book **Interdisciplinary Treatment Approach for Children with OI**, published by the Shriners Hospital for Children, Canada, in 2004. Information from the OI Foundation includes the fact sheet “Rodding Surgery in Children,” a series of fact sheets on preparing for surgery, post surgical care and talking with your doctor, and “Chapter 4: Making Treatment Decisions” in **Growing Up with OI**.*



NAME: Pete Boes

AGE: 33

TYPE: I

EXERCISING: entire life

Pete is the only person in his family with OI, and his father and older brother both worked out regularly when he was growing up.

“I wanted to show that I could be just as physically fit, even though I have OI,” Pete said. “In fact, I’ve always been very competitive. I won my varsity letter on the swim team my freshman year in high school.”

At one point, Pete discovered his competitive nature can be his downfall.

“I’ve had a number of surgeries due to dislocations from overdoing it,” he explained. “I can remember a time when I couldn’t lift a can of tuna due to frac-

tures and surgeries.”

However, he asserts that the joint problems are worse when he’s *not* keeping physically fit.

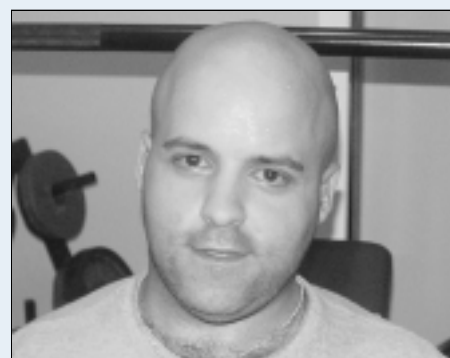
“I always knew exercise would help strengthen bones,” he said. “But people tend to forget OI is a collagen disorder—which means it affects the joints as well.”

Pete swims 1-2 miles every day, lifts weights four times a week, and runs twice a week. His personal fitness goal is to compete in a triathlon, but his true incentive to stay fit is simply to prevent fractures and joint problems.

“If I’m not working out, I fall apart,” he said. “That’s when the breaks and dislocations start happening.”

Pete believes that one of the greatest benefits of fitness training is the rise in self confidence it gives people.

“If you break every time you try to do something, that doesn’t breed any confi-



dence in your body or ability. Exercise helps increase that confidence, as well as your abilities.”

“Whether it’s increasing your finger strength so you can control a wheelchair better or increasing strength overall, *everything* you do helps.”

“Exercise, at whatever level you *can*, improves the quality of *anyone’s* life,” he said. **OI**