

Synovitis of the knee after intraarticular fracture fixation with Biofix[®]

Report of two cases

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We report two cases of severe aseptic synovitis of the knee 8 and 13 weeks after biodegradable internal fixation (Biofix[®] rods) of a fracture of the intercondylar eminence. Both knees were treated by surgical

revision and synovectomy. Histologic examination revealed a severe foreign-body type of reactive synovitis in the absence of infection. It is not advisable to use Biofix[®] intraarticularly.

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Case 1

A 10-year-old girl had an avulsion fracture of the intercondylar eminence in her right knee in a bicycle accident. The fracture was fixed with two Biofix[®] rods (without dye, diameter 2.0 mm). The knee was immobilized in a cast for 5 weeks.

8 weeks after the operation the girl developed signs of acute arthritis with pain and swelling of the right knee. Rectal temperatures were about 38 °C, ESR was 94 mm/h, orosomucoid was 98. Microscopy of the joint fluid showed leucocytes (60% mononuclear, 40% polynuclear) but no bacteria, and repeated cultures for bacteria were negative. Synovectomy was then carried out. The synovial membrane was severely inflammatory and in places 1 cm thick, the Biofix[®] pins were not visible and the fracture was healed. Histologic examination revealed a massive inflammatory reaction with countless foreign bodies in lacunae and giant cells containing phagocytosed debris (Figure 1). 4 months later the knee had recovered.

Case 2

A 30-year-old woman fell while skiing and sustained an avulsion fracture of the intercondylar eminence of her right knee. The fracture was fixed with one Biofix[®] screw and two rods (without dye, diameter 2.0 mm). The knee was immobilized in a rigid cast for 4 weeks and in a fixed moveable cast for 2 weeks.

13 weeks after the operation, her knee was swollen, body temperature was normal. At synovectomy we found severe synovial inflammation as in case 1, the fracture was healed, and the Biofix[®] pins were not

visible. Cultures from joint fluid and synovial tissue were negative for bacteria. 3 months later the knee had recovered.

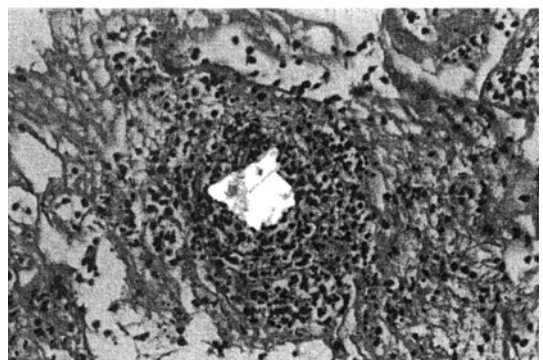
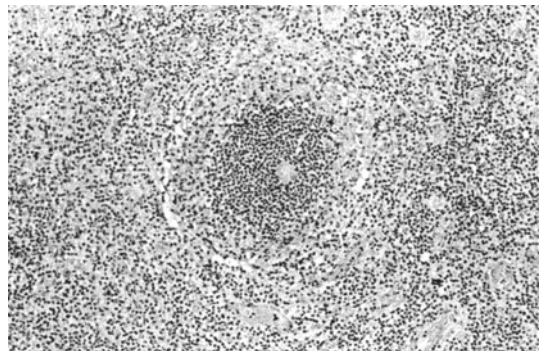


Figure 1. Histologic specimen from the synovial membrane of the knee in case 1, showing massive inflammatory response (top), HE $\times 80$, and foreign-body reactions and multiple giant cells containing masses of phagocytosed debris (bottom), HE $\times 200$, polarized light.

Discussion

A review of 516 patients (Böstman et al. 1990) treated with Biofix® rods, revealed late non-infectious inflammatory response, requiring operative drainage, in about 8 percent of the cases. In intraarticular knee fractures inflammatory complications were seen in 15 percent.

In their case of severe aseptic synovitis in the knee after using Biofix® intraarticularly, Fridén and Rydholm (1992) discussed the possibility of an immunologically-mediated reaction. However, Santavirta et al. (1990) found Biofix® to be immunologically relatively inert. The other possible explanation would be the low pH generated during the degradation process. We do not find it advisable to use Biofix® rods intraarticularly.

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References

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