Review

Veterinary interlocking nailing and its augmentation for fracture repair

D.B. Patil¹, Z. Adamiak², A. Piórek²

¹ Department of Surgery and Radiology, Faculty of Veterinary Medicine, Agricultural University in Anand, India
² Department of Surgery and Radiology, Faculty of Veterinary Medicine, University of Warmia and Mazury, Oczapowskiego 14, 10-957 Olsztyn, Poland

Abstract

The present review informs about the current status regarding use of interlocking nailing for fracture repair in animals. The clinical limitations of interlocking nailing and its subsequent improvement by evolving novel nail design or supplementation with type I ESF using hybrid nail bolt/ESF pin has been dealt. The biomechanical and clinical evaluation of novel interlocking nail supplements and its possible clinical use is included.

Key words: interlocking nailing, supplemental interlocking, hybrid bolt-pin, fracture repair

Introduction

Fracture repair in animals is a constantly evolving field with possible extrapolations from human orthopedics. A versatile all – fracture repair technique still eludes us, amidst complexities of wide spectrum of species and body weight.

The fracture repair technique adopted is specific to each fracture and repair of comminuted long bone fracture still remains a challenge for veterinary orthopedic surgeons.

Biological osteosynthesis is well established (Horstman et al. 2004) and demands stable, long lasting fracture repair method accomplished in a minimally invasive fashion to spare blood supply and that can be deestabilished at appropriate stages during healing (Basinger and Suber 2004).

Of late, use of C-arm with image intensifier has revolutionized treatment of veterinary orthopedic patients. At field level, in absence of C-arm, the concept of “open but do not touch” (OBDNT) repair has been reported, wherein smallest possible incisions are made with minimal soft tissue dissection to observe fracture and place implant (McLaughlin 1999, Palmer 1999). Biologically repaired fractures generally heal by secondary, indirect or callus healing (Durall and Diaz 1996). Of the biological methods of fracture repair available, interlocking nail (IN) fixation has gained precedence over others following its popularity in human orthopedics (Kyle et al. 1991). This review brings into focus the evolutionary changes in the configuration of IN and its supplementation under clinical and experimental settings.

Interlocking nail

Interlocking nails (INs) were first developed during early 1950s. First IN was used in human orthopedics in 1974 under fluoroscopic guidance (Kempf et al. 1985). Use of IN in animals was first reported by in the late 1980s to stabilize comminuted long bone frac-