Professor Stuart Carmichael
BVMS, MVM, DSAO, MRCVS

University of Surrey
United Kingdom

Stuartc@
joint-adventures.co.uk

FRACTURE MANAGEMENT PLANNING

Successful fracture management relies on a full appraisal of the clinical case and collection of all facts relevant to the fracture repair. A careful assessment of the fracture itself is essential by studying radiographs of the damaged bone. The clinician must then organise these facts and make a decision on the best method of managing the problem.
A good understanding of the many different methods now available for stabilising in fractures is also very useful. The number of new techniques and modifications of existing techniques may appear daunting at first but they are based on fundamental principles which if well understood and followed can lead to a successful outcome. In fact many of these new techniques make fracture management easier as they offer a wider range of options and opportunities to manage fractures, which in turn enables a general practice to cope with a much wider range of fractures competently.
It is also important to understand personal limitations and be realistic about outcome before embarking on a fracture management plan.

Fracture Patient Assessment Score(FPAS)
Using a consistent approach to planning can help prevent errors and ensure that the right solution is selected for a particular situation. Using a scoring system (FPAS) is a simple way of bringing all of the considerations identified in assessment, and match them to a single case scenario in the clinic.

Assessment
1. Biological Considerations
2. Mechanical Considerations
3. Clinical Considerations

Identify good or bad aspects in the fracture being assessed using the groups suggested above. Biological considerations will affect the rate of bone healing ie infection; blood supply; age; high energy fracture etc.
Mechanical points include factors that will make it difficult for the bone and implant to accomplish early weightbearing, eg comminution; large breed; load sharing

Clinical factors allow us to include factors such as the owners needs and abilities and our own abilities.

Make a fracture score for the particular case
A fracture assessment score can be developed by considering all of the factors influencing bone healing. Each of the three main factors is considered and graded on a 1 to 10 scale, where 1 is Bad and 10 is Good.

- Biological Score = (1-10)
- Mechanical Score = (1-10)
- Clinical Score = (1-10)
- Composite Score = (1-10)

A composite score is assigned to the animal. An animal assigned a score of 10 should progress to fracture healing regardless of treatment. The animal assigned the score of 1 will be very difficult for the surgeon to treat the fracture and achieve bone healing without a series of complications. The fracture assessment score is used as a guide for selecting implant systems for fracture repair. Animals with a very high score are treated with surgical implants. As the score decreases, it is increasingly imperative that the fixation technique chosen must be strong enough to sustain long term weight bearing without failing. Additionally, techniques such as cancellous bone grafting which stimulate the biology of the fracture site are incorporated into the fixation regime.

The main objective of this exercise is to standardize the assessment of a fracture situation to give a true picture of the problem it poses. This allows an appropriate Management Plan with a good chance of success to be formed. The higher the FPAS the more options there will be with high chance of success. The lower the composite score the the fewer options and the higher need for specialized equipment and experience to obtain a satisfactory outcome.

The true art of successful fracture management is applying the simplest method that will give a high chance of a good outcome and avoiding over-complication.