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Introduction

Aim of fracture management is to treat every injury, in the best manner as one can. Good clinical examination, assessment, efficient and necessary splint application on arrival and arranging necessary X-ray examination form the basis of treatment and its planning. Every orthopedic trainee must know a few things regarding X-ray positioning and avoid pitfalls in the technique.

One should attempt to reduce the patient discomfort and keep any chance of complication to a minimum. Such a care would help to restore the function, close to the pre-injury status.

Having organized and planned steps in any procedure, one should continue to carry out a procedure in the same order. This improves the speed and efficiency of the entire team. Thus, in an operation room, placement of gadgets should be exactly at the same place with respect to the patient position.

In a case, after induction of anesthesia, once I observed that the 'C' arm did not start! Lesson learnt is, prior to induction of anesthesia, one should check that all gadgets are in order and working. It must be confirmed that they are functioning properly, prior to induction of anesthesia and it is a safe and necessary step. This is very much needed in a small and mid-size organizations, where the infrastructure is just adequate and spare equipment may not be available. Pneumatic tourniquet, electro-cautery and 'C' arm unit are important gadgets and if, unfortunately, one of them does not function well, one knows what one is likely to face during a procedure!

The operation instruments and implants, including power tools, video equipment, etc. be sterile and ready. Every OT should have all the instruments packed and arranged, as per the system and be sterile all the time. This is because, one may need few additional instruments during a surgical procedure, unexpectedly.

In spite of advances in technology, instrumentation, implants and availability of gadgets such as 'C' arm unit along with basic surgical skills, pre-operative planning and thinking of likely alternative steps, continue to have their place.

It is necessary to know what the purpose of an implant is, such as an interlocking nail or an LCP. One should know, how much stability a plate will confer and in what mode it is used, i.e. tension band or a neutralization mode. If this is not understood and one expects too much from an implant, it is likely to fail.

In the last few years, it is seen that immediate internal fixation being done in a fracture case, soon after arrival. Quite a few unfortunate results are noted in such cases. I feel this could have been avoided, if immediate closed reduction and appropriate external immobilization or skeletal traction was administered as a stage I of the procedure. This improves venous drainage and keeps the tissue reaction leading to hematoma and edema formation to a minimum. If an injury is left without a formal reduction and immobilization, blister formation around the ankle is a common phenomenon. If the planned procedure is delayed judiciously, and is done at the right time, the outcome would be far superior and a secondary procedure could be avoided. This is especially observed in fractures in subtrochanteric area, lower end of femur, upper end of tibia and ankle fractures. Unfortunate result is often seen in such an injury that was the only injury in the person. In such a case, immediate fracture stabilization, to make the patient stable, is not always essential. The time interval between the initial reduction and definitive fixation offers the

body, time to recover from the initial injury and the surgeon has some time to plan and think every option and keep necessary equipment ready.

Radiographic examination should be done with correct patient positioning, to give the necessary information. Certain intra- and juxta-articular injuries need further CT scan with a 3D reconstruction, to have a correct definition of the injury and avoid surprises on the table.

In nearly all bone and joint injuries, I would prefer to carry out first a closed reduction and immobilize in a plaster support. Certain hip and knee injuries are better immobilized with a Thomas' splint. One should take a pride to have a good splint room, next to the emergency room. If a CT scan is felt necessary, then instead of a Thomas' splint for the knee, one can apply a padded plaster slab support. The patient comfort increases while a CT scan is done.

This observation period stabilizes both the young and the elderly patients, for different reasons. In the young, the tissue reaction is quite some, for which, one needs to wait. The teaching is to keep femur and pelvic fractures in skeletal traction. In quite a few cases, it does help a lot. Pre-operative planning and arranging the necessary equipment usually needs some time. In the elderly, often the blood sugar needs to be controlled, fresh 2D echo study needs to be done and anti-platelet drugs need to be stopped. Many of them are not well-hydrated and anemic too. Waiting judiciously for a few hours or days is thus well-utilized and well-rewarded.

If one decides to operate a case of multiple fractures admitted, outside working hours, many considerations are required: More number of trained OT staff, more number of sterile instrumentation sets for different limbs, assured sterilization and a few other supporting things are needed. I wonder, how many operation theater units have a dedicated area, separate sets of instruments and team, in general, for emergency procedures, different from that for a planned surgery. If such a separate facility is available, it also protects the principal operation area complex. Besides this, the principal surgeon should not be 'a tired surgeon' at the end of a given day and has to stabilize a few challenging fractures, one after the other.

One needs to remember a few aphorisms:

- There are no errors. These are only experiences to learn from.
- Pathway to success is paved with failures and experience means remembering one's failures and manage the future cases accordingly.
- Success is not a key to happiness. Happiness is the key to success. If one loves what one is doing, one would be successful.
- Do not read success stories. All you will get is a message. Read failure stories and surely you will get ideas to make a success story!
- To me fascinating statistics are not important. Any given procedure when being done, should be well-indicated, have its utility and be a safe one. One should do what is safe in one's hand.
- Perhaps one cannot make all the mistakes in one's life and hence, it is better to learn from each other's as well. Intelligent ones learn from their own mistakes, while the genius ones learn from others' mistakes as well.

Rapid growth of knowledge and newer implants are available. However, the place of earlier implants still continues, e.g. in a Barton injury of the wrist, each case does not need a locking plate and some cases can still be well managed by a buttress plate, which we have been using for the last many years. Often a decision is difficult and the treating clinician may be torn between the ideal method available today and financial constraint of the patient.

When a case comes to me for a second or a third opinion, I carefully take the history, do a clinical examination and try to know the purpose of his visit to me. I look at the day 1 X-ray films and think, as to what I would do in such a situation. Then I see the films, to know, what was done in the given case. This improves my learning and thinking process, so I can make an honest plan of action. For such a situation quoted in this book, I have given analysis of my thoughts, which would be useful to the reader.

I would always prefer a neat and precisely carried out procedure with good judgment and safety in a reasonable operative time, rather than a fast surgery. The speed always comes when specified steps and protocol are followed for each procedure.

A balanced approach to manage a case is important. This led me to the idea of publishing a compact book in orthopedic surgery. It is hoped that the reader will welcome this concise format, practical tips and steps in patient management.

The aim has been to promote a careful and safe technique, with regards to soft tissue respect.

Thus, this book *Tips and Tricks in Orthopedic Surgery* is a collection of ideas put together. I am sure, the reader will find them useful and interesting. Some ideas, I have learnt from my students and colleagues and I have acknowledged them. Whatever I am today, is because of my teachers—may be directly or indirectly. Teachers have been torch-bearer for me and I am indebted to them forever.

The entire photography is done by myself. While digitizing a photo from an analogue slide, I am aware, some loss of quality is inevitable.