

GUIDELINES

Good orthopaedic practices in MSF OCP missions

INTRODUCTION

Mid 2007 several missions asked Medical Department for protocols to control and orientate better our orthopaedic activities.

Primum non nocere. Mission impossible.

I admit that I hesitated a lot to find a heading for this subject. After saying that it's a matter of good sense, it seemed not sufficiently enough.

We wrote in 2007: orthopaedic conservative treatment makes clearly an integral part of our means of treatment. For surgical treatment, every ortho surgeon has his own history, his training and his habits and we don't want to set up strict protocols on how to treat each type of fracture . However 2 meetings in New York (USA) in June 2007 and 2008 gave us the opportunity to precise our first results and to lay emphasis on what we recommend. This guide is the conclusions of these meetings and will be completed each year according to our results.

MSF started these surgery programs after being confronted with patients who needed higher levels of care than they were receiving. We needed to develop more sophisticated techniques, needed to do more than just send an orthopaedic surgeon to the field with a few extra tools. We needed changes in practices and how we built our teams. Programs were reorganized, re-strategized and there was a healthy tension between operations and medical people.

We have come a long way in orthopaedic treatment. From an operational point of view, we really struggled with these programs. They are heavy to run, pushing our limits. One of the collateral benefits of these programs has been to raise the quality of all surgical programs in MSF especially on hygiene and sterilization processes. From our first figures we can say that we have been right but there is still much to improve. Some basic rules are not followed by some surgeons, some pre requested are not fulfilled.

It's difficult to give union rate figures or final outcome of patients as follow up is a tricky part with patients leaving far away or not coming back to clinics. However we are in a position allowing us to underline some guidelines for MSF ortho surgeons and sometimes to repeat some basic rules (e.g. war surgery).

The early (3 to 4 weeks) infection rate for internal fixation on closed fractures is between 1,5 and 3,5% respectively in La-Trinité (Port-au-Prince, Haiti) and Port Harcourt (Nigeria). 2 comments look essential:

- Results are quite similar at what was the 1,5 to 2,8% average infectious rate complications in the 70's-80's in Europe and USA.
- The rate is too high in Port Harcourt and is well explained by non respect of some pre requested items and some surgical behaviours.

CLOSED FRACTURES

External fixation should not be used for closed fractures.

Brace cast works well for simple fractures. For us it is not acceptable to treat a non-displaced closed fracture of the leg with internal fixation. This fracture only demands a good cast to consolidate spontaneously with almost a success rate of 100 % and certainly not to expose the patient to the risk of infection.

Same with a displacement of a few mm over a tibia diaphysis or even an imperfect angulation, we have always the option of plating (POP-tomy), thus avoiding a surgical intervention.

If you don't have the proper device in the field for Internal Fixation, or if sterilization environment is not acceptable, it's better to do traction or POP (Plaster-of-Paris). In Port Harcourt our MedCo went through all the files of infected patients: 2/3 became infected not after the first operation, but after the second or third one. Why? Because the surgeon operated with the wrong plate, a too small one, or started with the wrong procedure, lack of good size nails, etc.

COMPLICATIONS OF INTERNAL FIXATION

Bacterial adherence is a major factor in the development of implant-associated infections - 45% of nosocomial infections are related to implants (e.g. Foley catheters, endotracheal tubes, etc.).

Implant paradox = implant may be a bacterial reservoir but the implant provides stability. There is a room to keep implant in after good debridement and a course of antibiotics but if it fails implant has to be removed.

Antibiotic prophylaxis protocols. See it in the general antibiotic management; it's not a guide but a protocol. (CD given to all surgeons and available in the mission and in the toolbox).

OPEN FRACTURES

Use only GUSTILO fracture classification (CD given to all surgeons and available in the mission and in the toolbox).

After 8 hours consider that the fracture is infected.

An open fracture is an emergency. Patient should be given Cefazoline on the spot, upon presenting to hospital (in addition to Tetanus prevention, see antibiotic protocol).

Try to find a way to operate within 8 hours, and always as soon as possible. **We do not accept any internal fixation on open fracture** (it can only be discussed for Gustilo I seen within the first 8 hours).

Good debridement is the key. Lots of failures are due to inadequate debridement.

Debride first, repair later – “when in doubt, take it out”.

Primary closure: never close wound immediately specially in war injuries; **MUST** be cleaned first.

Keep option of flap in mind.

EXTERNAL FIXATION

External Fixation frame must be as close to skin as possible (Gexfix technique is on the CD given to all surgeons and available in the mission and in the toolbox).

Pin position: one pin must be close to fracture site, as close as possible, and the other pins as far away as possible.

Insertion of pins: Start with proximal, then distal, then middle if needed.

Reduction: you can reduce fractures directly with a temporary plate or a bone holder.

Type of frame must be chosen depending on the type of fracture:

- If fracture is simple and stable, use one frame.
- If large bone defect, better to use double frame.

As soon as pins are in, patient can live relatively normally, clean with soap and water, shower, hair dryer. If you see slight inflammation, treat with iodine, no antibiotics are needed, no dressing is needed.

Incision on pin side is often too small; needs to be large enough for movement; otherwise there will be tightness, inflammation, and ultimately infection.

Pin track infections is usually a problem of hygiene. No need for antibiotics, especially if you find a bacteria on a useless swab with no sign of infection.

When can flap be done without risk? When you are happy with debridement; not necessarily totally clean, just when you're satisfied with it. 30% of cases are still infected after debridement. It's not a problem to make flap at this moment, just make sure that there is no dead bone.

How do we address / treat open fractures according to different settings?

- Level 1

No ortho surgery.

Prescribe antibiotics and refer to higher level centre.

If you can't refer, debridement, washing, POP or traction; enlarge incision if needed.

- Level 2

Debridement, External Fixation (if available), POP, traction. Enlarge incision if needed, for visual, decrease pressure of tissue/skin.

If there is no X-ray; how to know when to remove it? If patient can keep / support it, better to keep External Fixation; can keep on for 2-3 months. Test out by load bearing by patient, not necessarily full weight bearing, but functional.

- Level 3 (La-Trinité, Port-Harcourt)

External Fixation and flap, or eventually external fixation and shortening.

Secondary Internal Fixation.

If you want to correct and do Internal Fixation, how long to wait after tissue healing?

According to your x-rays and patient, no set rules, treatment should be based on the surgeon and patient. Some patients want to keep in External Fixator. However general rules are to wait for 2 to 4 weeks with normal CRP and ESR.

CHRONIC OSTEOMYELITIS

Treatment is surgical? then antibiotherapy. No treatment should be given without proof and antibiogram (see antibiotic protocol). The first operation before any Internal Fixation is bone biopsy and culture +++++.

AMPUTATIONS

It's the most logical conclusion in some situations but extremely difficult to accept.

Reflected skin flap amputation is the standard rule; there is no room for the no-flap (or guillotine) amputation in MSF.

Should be done in case of major bone defect.

Must be accepted by patient and/or family (consent).

Talk with other doctors, it's a collegial decision, don't make the decision alone.

Provide prosthesis

Write everything down, especially from a legal point of view.

Abstention and amputation remain the only logical treatments in very precarious situations.

OTHERS

Orthopaedic program must last at least one year.

Should not be set up in very precarious situations.

For us, each surgeon going in mission must ideally sign a document saying that he is committed to operate according to MSF rules and to follow our protocols.