Performing a small miracle! Rhode’s Ear

One of those routine warnings by parents... “Rhode and Michelle! Please don’t chase the dog around in the house!” And one of those inevitable outcomes – Rhode falls and hits the side of her head on the coffee table “Ouch!” she exclaims, not thinking much about the incident, “… let’s go and have some cold drinks, Michelle.” Sitting on the couch in the family room, Michelle notices blood on Rhode’s ear “Rhode, there’s blood on your ear!”

Rhode calls her mom, who discovers to her horror that a chunk of skin is missing from the top of her daughter’s ear! Michelle goes back to the coffee table and discovers the missing piece of skin. They place it in a container, add a small block of ice, and rush off to the emergency department of the hospital!

Dr Wright has been on call for the past 12 hours and makes himself ready to leave following a fairly quiet shift, for a change. “Please Doctor,” the sister requests, “We have a young lady with part of her ear missing!”

Time is of the essence and Dr Wright prepares to do a full thickness skin graft using the severed piece of skin as the graft.
“Don’t look so worried, we’ll fix this like new,” He reassures the patient and mother and starts with the procedure. Local anesthetic... cleaning... suturing... and dressing. “Will the injection hurt?”, “How many stitches will I get?” Dr Wright talks them through the procedure. The job is neatly done, almost reflexively, and then the patient and mother receive instructions, “please don’t wash your hair or allow water on the wound for 48 hours. Use this ointment liberally on the wound twice daily and please return in a week for the removal of the stitches. Don’t hesitate to call me if you have any problems whatsoever!” And off go the patched-up patient and relieved mother...
Would you like to be able to master how to care for wounds?

THE BASIC PRINCIPLES OF WOUND CARE

Know your patient
If time allows – take a good medical history, if not take a brief medical history – but always take a medical history - (see “Project 0” of The Apprentice Doctor® Course and Kit). Is your patient allergic to certain local anesthetics, antibiotics and pain medication, antiseptic solutions or plasters/strapping? Does he/she suffer from chronic diseases like Diabetes or bleeding disorders? Are they using any chronic medications? Etc.

Good vision (good lighting)
Fact is that medical schools have trained a number of blind physicians over the years – but no blind surgeon yet. Scrub sisters have a saying that the good surgeons are those who always complain about the light – might be true, because the whole success of the surgical procedure depends on good, proper lighting of the operative field offering the surgeon with optimal visual sensory input!

Anesthesia
The surgeon will make decisions regarding local anesthesia / general anesthesia and/or sedation. You cannot do your best for a patient who is jumping, jerking screaming or crying all the time.

Aseptic Technique
Complete sterility of the operative field is not attainable. Sterile instruments and suture material must be used. Excess suture material must be discarded in a container purposed for biological waste. The
needle must be discarded in a suitable biological sharps waste container).

Avoid using strong antiseptic preparations for cleaning the wound. Most antiseptic solutions will cause damage to the friable exposed tissue cells. In most cases a normal saline solution will be sufficient to clean an uninfected wound!

**Remove All Foreign Material**

The removal of all foreign material must be ensured. Remove all pieces of glass, soil, plant material etc. Soil remaining in the wound will cause a traumatic tattooing (very difficult if not impossible to remove at a later stage!) If necessary, brush the wound with a bristled brush combined with a mild soap solution e.g. Savlon. Leave the least number of sutures buried in the depth of the tissue - within the limits of getting a secure closure. Remember that suturing materials although necessary are considered by the tissue as foreign material.

**Leave Minimal Dead Space**

While suturing, the operator will try to suture living tissue to living tissue. Do not leave empty spaces filled with air, blood or tissue fluid. Dead spaces produce wonderful opportunities for bacteria to proliferate and to cause infection. Dead space may fill up with blood clot and will contribute to the formation of excessive scarring.

**Handle Tissue Gently**

Always perform surgery - showing respect for living tissue. Careless suturing may cause more unsightly damage compared to the original wound! Use a toothed forceps to handle the skin (gently touch
though). A flat forceps slipping all the time will cause more damage compared to a toothed forceps handled gently.

**Control Bleeding**

Bleeding can be reduced with suctioning and gentle sponging, and controlled by Electro-cautery (electrical burning) and suturing – ligate (tie-off) larger veins and arteries and use tight suturing over bleeding areas (within reasonable limits of course). Excessive bleeding will decrease your ability to see what you are doing – and good vision is the first principle of surgery!

General bleeding and an inability of blood to clot may be due to a number of medications e.g. aspirin (pain-killer), Hemophilia (a hereditary absence of clotting factors in the blood), Liver disease, a number of blood diseases, anti-cancer medication (chemotherapy may reduce the blood platelets which are essential for normal blood clotting to occur) and alcohol consumption (not an infrequent finding with patients reporting to a hospital’s emergency section).

Do take a **thorough patient history** before you start treating the injury!
The acronym **LACERATE** will help you to stay on track when confronted with a laceration to repair.

**Look At The Wound; Assess It**

**Anesthetic Considerations**

**Cleaning The Wound**

**Equipment – Set Up**

**Repair Of The Wound**

**Assessing Results, Anticipate Complications**

**Tetanus Immunization Status**

**Educate The Patient Regarding Wound Care**

**THE REPAIR OF WOUNDS**

**Goals For Suturing Wounds**
Optimal wound care aims at maximizing functional restoration as well as optimizing the esthetic result. These goals must occur within the limits of maximum patient safety and patient comfort (a calm patient experiencing the minimal amount of pain and discomfort).
Suturing a wound may assist the healthcare professional with 3 immediate goals:

- Tight sutures will assist in controlling bleeding (securing hemostasis). It is not a substitute for normal bleeding control measures e.g. ligating arterial bleeds in the depth of the wound etc.
- It reduces the chances of wound infection. A closed wound is much less prone to wound sepsis than an open wound. Further contamination from the outside environment is also reduced considerably!
- Reduced pain. An open wound leaves the severed sensory nerve endings open – thus increasing pain.

Suturing a wound will optimize the traumatized tissue’s chances of retaining its blood supply, and at the same time minimizing the formation of unsightly scar tissue.

Wound closure is divided into:

- Primary closure – closure within the first 24 hours
- Secondary closure – wound closure more than 24 hours after the injury.

Primary closure of wounds should be the norm in most cases. Exceptions to the rule would be highly compromised tissue where the medical professional anticipates debridement of the wound (cleaning and cutting away dead tissue and-or foreign material) to be necessary.
Reasons for wound breakdown:

- Suturing under tension. Suturing should be passive – do not stretch tissue and try to close the wound under tension – it will break down!
- Sepsis. Common reasons for sutured wounds to open up again are wound contamination by bacteria and/or foreign material.
- Poor blood supply to the wound edges due to the extent of the trauma.
- Other factors include irradiated tissue, certain systemic diseases like diabetes, AIDS etc.

**A BASIC COURSE IN SUTURING TECHNIQUES**

May I repeat, *The Apprentice Doctor® Suture Course and Kit* is not intended to substitute the clinical training of students but rather to offer a firm foundation and an opportunity to experience his/her initial learning curve in an imitation situation – so as to fill the student with confidence when he is faced with the real life clinical situation.

During practical Projects A to L, guidelines are given regarding distances, spacing of sutures and needle bite sizes. These indications are only average guidelines and will vary quite a bit depending on the specific area of the body one is suturing.

Each of the following variables will influence the choice of suture, needle and suturing technique:

- The relative cosmetic importance of the wound site
- Suturing elastic skin (neck) versus non-elastic skin (scalp)
- Skin covering soft tissue structure like muscles (chest and thigh) versus skin covering bone (the shin)
• Skin covering specialized structures (the nose and ears) versus general covering (the torso and extremities)
• Skin covered by hair (scalp) versus hairless skin (palms of the hand)
• Thin skin (the ears) and thick skin (soles of the feet)
• Tough skin (around the umbilicus) and soft skin (the eyelids)
• Blood-rich skin (nose) versus skin with a less plenteous blood supply (lower extremities)
• Patient variables like age, access to medical facilities, medical history etc.
• Wound variables e.g. abrasion, depth of laceration, neat or ragged wound edges, contamination, infection etc.

In the final analysis the student will be gaining experience by suturing real wounds on real patients. There is no substitute to the clinical teaching situation and skills transfer from experienced clinicians to students.