

Surgical technique of coccydynia

Levon Doursounian

Saint-Antoine University Hospital, Paris, France

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INTRODUCTION

I started coccygectomy in the early nineties with a classical operative technique, similar to what Key described in 1937. I used the same technique over 500 cases. The main steps of this surgical technique are :

- Midline vertical incision
- Section of the intervertebral joint
- Release of the lateral tissues
- Release of the anterior tissues from proximal to distal

PREOPERATIVE CARES

An enema is administered the night before surgery

The patient should shower the night before and the morning of surgery

OPERATIVE TECHNIQUE

Surgery is performed under general anesthesia. The patient is placed in the prone position on a spine surgery table with hips and knee flexed [Fig 1]. Palpation help to locate the tip of the coccyx and to define the limits of the incision. Sometimes palpation brings out a spicula [Fig 2]. The line of incision is marked in the midline, following the intergluteal slit, over a distance of five to six centimeters, leaving at least four centimeters between the distal end of the incision and the anus.

After skin preparation, the adhesive drapes are placed as close as possible to the traced line. The distal drape must be placed in such a way as to exclude the anal region completely from the surgical site [Fig 3].

I used to cover the site with an antimicrobial incision drape (loban®) but I no longer do so. The skin is incised with a scalpel down to the fatty tissue.

When there is a skin pit overlying the spicule, a spindle-shaped incision is made in order to remove it [Fig 4a-b].

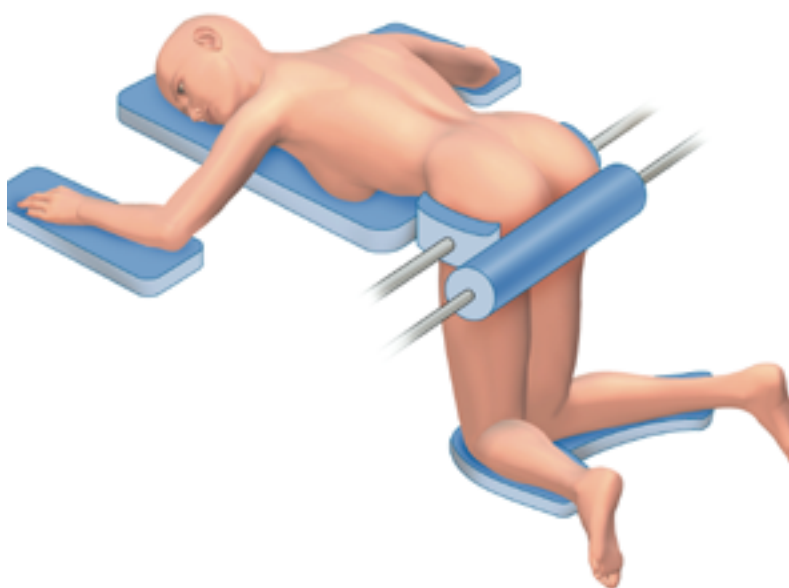


Figure 1



Figure 2

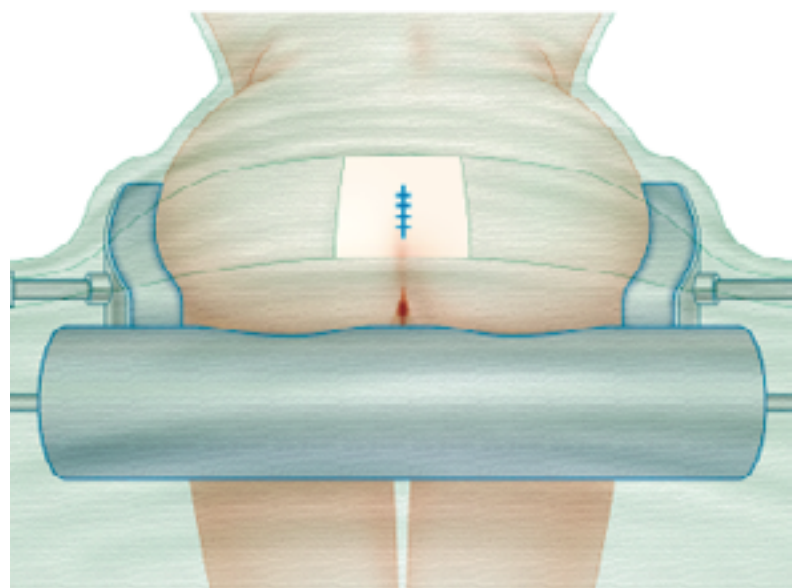


Figure 3



Figure 4a et b

The incision is deepened down to the coccyx, which had been identified by finger palpation. A small self-retaining retractor is used to retract the margins of the incision, while the proximal and distal ends of the incision are held with retractors. Under the fatty tissue there is a the fascia covering the coccyx [Fig 5]. This fibrous tissue is divided with electrocautery, until the tip of the electrode is against the posterior aspect of the coccyx.

With electrocautery, the posterior aspect of the coccyx is freed of fibrous tissue, keeping in contact with the bone throughout and working from proximal to distal and from one side to the other; this is what is called subperiosteal dissection [Fig 6].

At this stage, the coccygeal resection level is determined, by probing with the finger or with forceps to establish the site of abnormal mobility. In the majority of cases, this site is between coccygeal vertebrae [Fig 7]; in the other cases, it is between the sacrum and the first coccygeal vertebra. In order to remove the mobile portion of the coccyx, the distal (mobile) end is seized with forceps. With traction on the mobile portion, the fibrous tissue of the intercoccygeal disc is divided with electrocautery [Fig 8-9]. Forceps traction on the mobile segment is continued, while the fibrous tissue on either side is released with electrocautery.



Figure 6



Figure 7

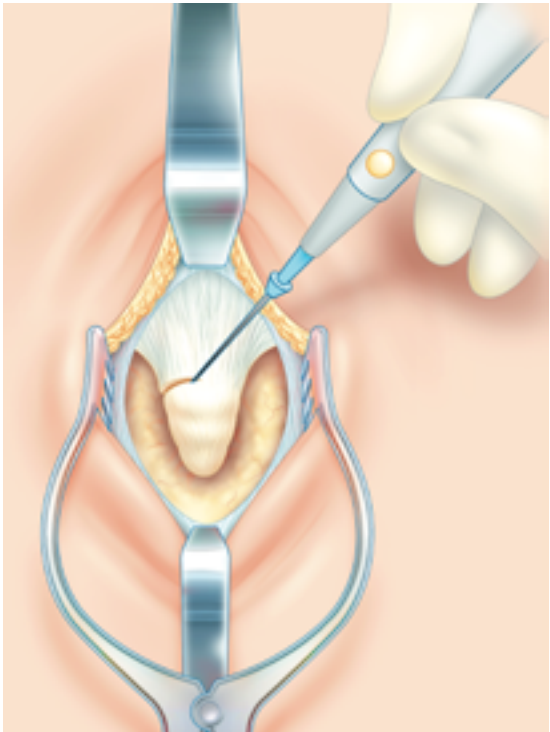


Figure 8

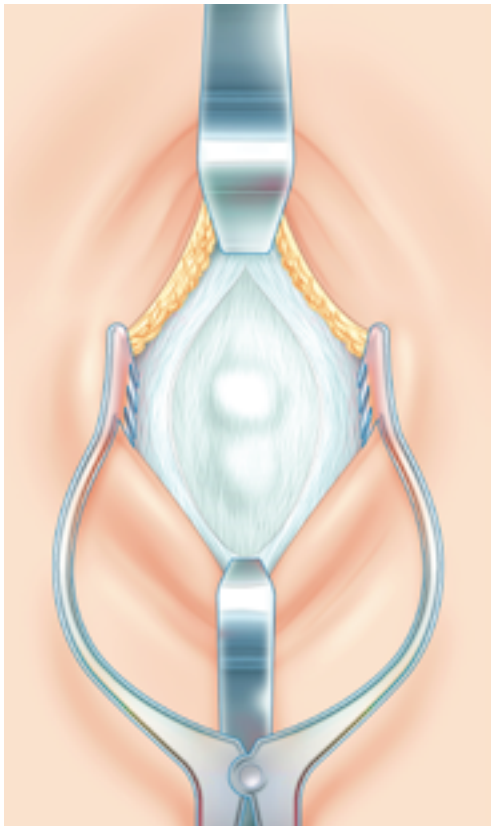


Figure 5

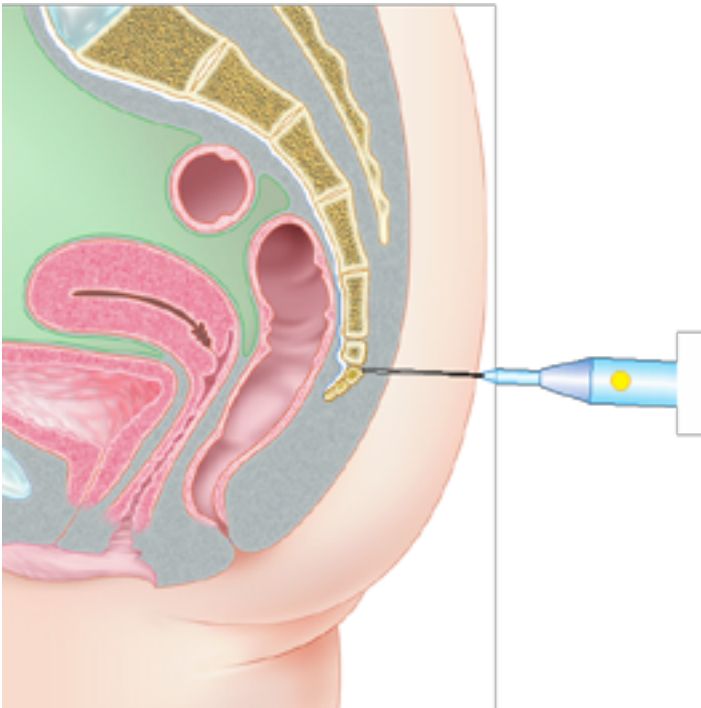


Figure 9

Next, the fibrous tissues on the anterior aspect of the coccyx are carefully detached, keeping the electrode tip in close contact with the bone at all times. In this way, the anterior aspect of the coccyx is dissected free of the rectococcygeal septum, working from proximal to distal [Fig 10-11]. Throughout this part of the procedure, traction on the coccyx is maintained, and dissection performed with great care, in order to ensure that the wall of the rectum is not nicked.

Once dissection is carried to the tip of the coccyx, the coccygeal segment is completely detached. The proximal bony portion (usually, the first coccygeal vertebra; occasionally, the lowermost part of the sacrum) is trimmed with a curette and a rongeur to obtain a blunt cancellous end face.

The wound is irrigated with povidone-iodine (Betadine®) in saline, and closed over a suction drain. The wound is closed in two layers : one deep layer with absorbable sutures and skin layer closed with nylon sutures. Since 2002, I apply topical skin adhesive on the wound [Fig 13].

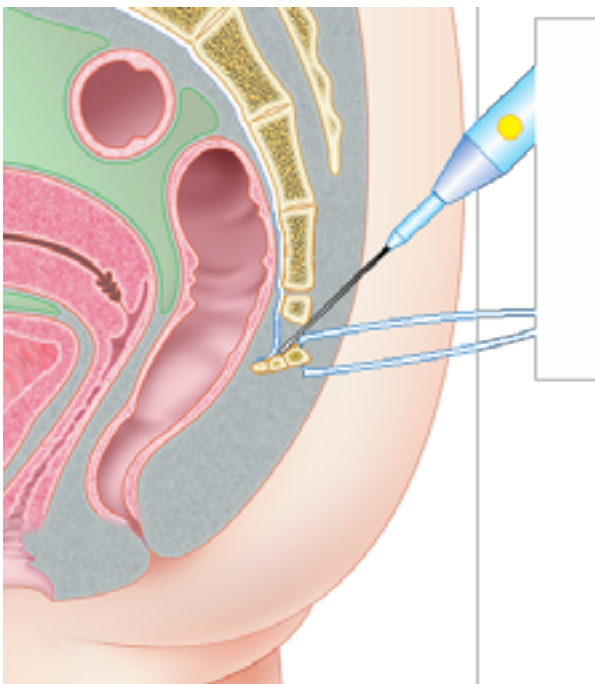


Figure 11

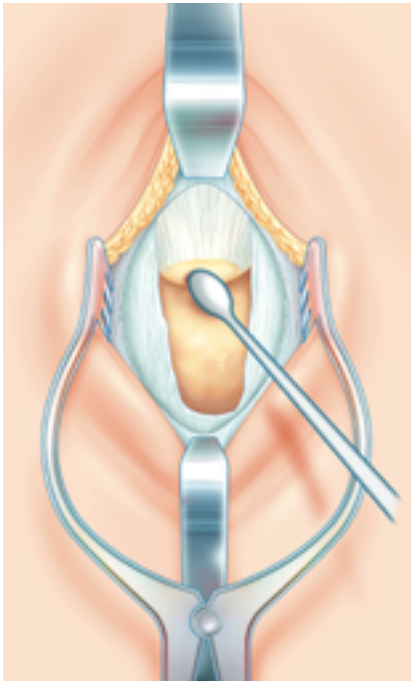


Figure 12

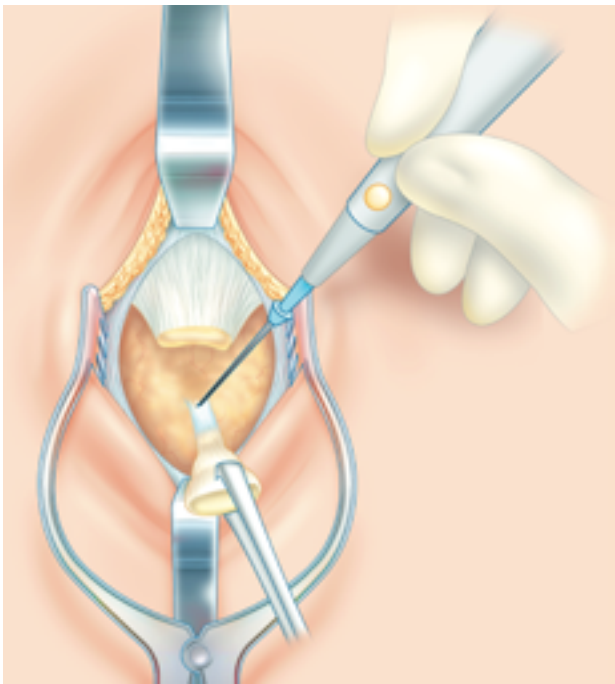


Figure 10



Figure 13

I have used suction drainage for many years but since 2012 I only use drainage in heavy patient or when the surgical field is abnormally bleeding. The dressing is performed with great care, to ensure that the healing wound would be strictly isolated from the anal verge [Fig 14]. To this end, the adhesive edge of the dressing was snugged into the bottom of the intergluteal cleft, between the distal end of the incision and the anus.

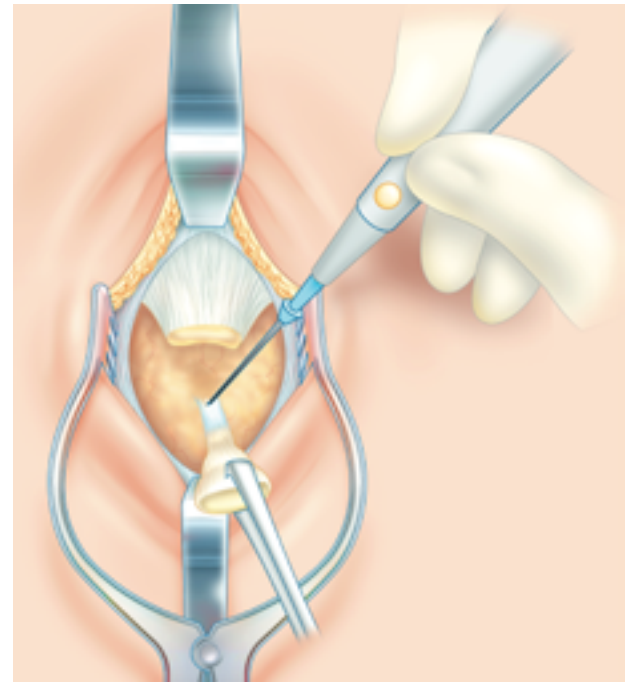
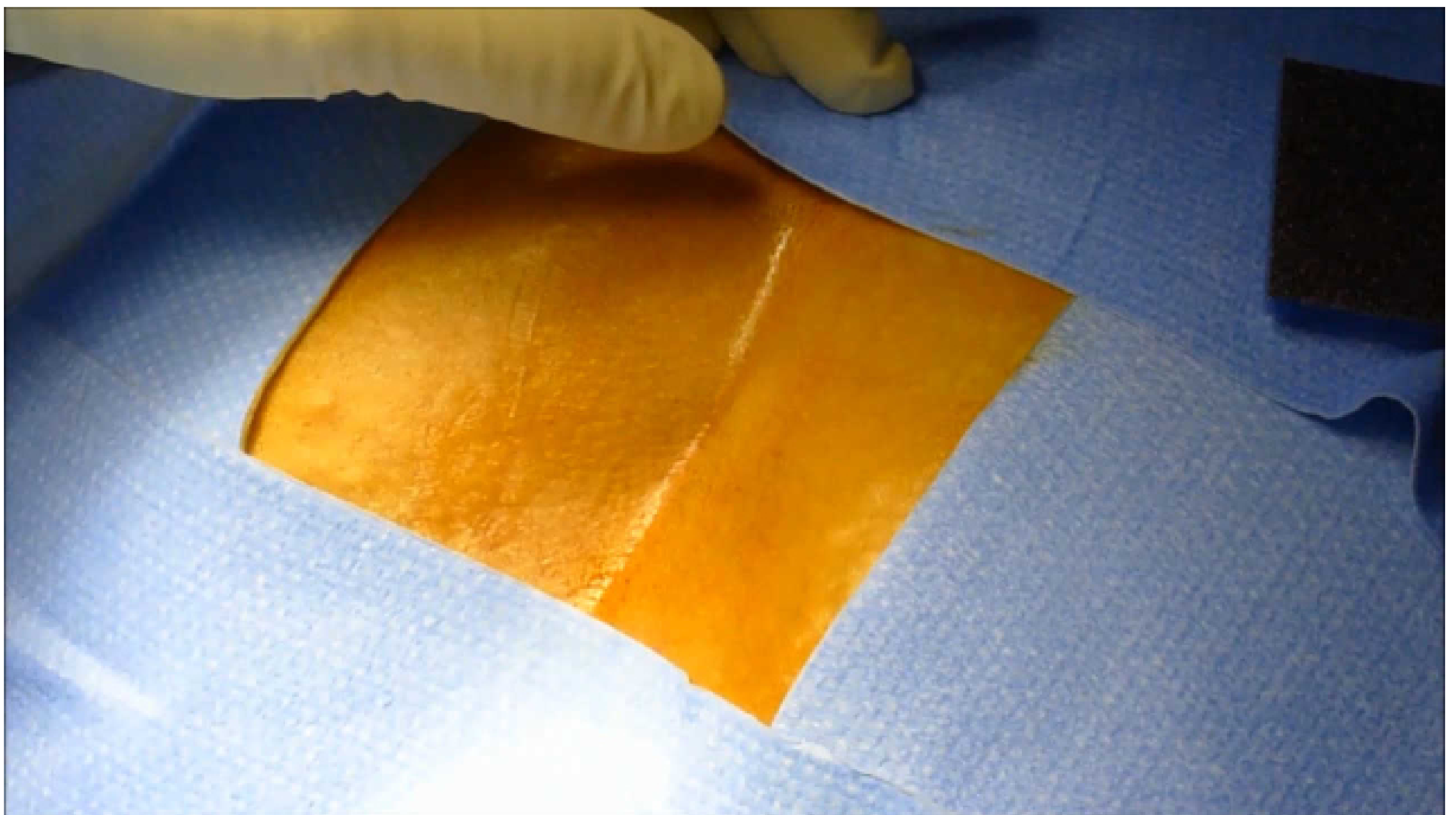


Figure 14

OPERATIVE TECHNIQUE VIDEO



POSTOPERATIVE CARES

Intra venous antimicrobial prophylaxis is administered for a period of 48 hours : cefamandole 1.5 g every 8 hours and ornidazole 1 g per 24 hours.

Patients remain in hospital for 5 to 7 days and the dressing is changed every second day without removing the film of skin adhesive. The sutures are removed on the 9th or 10th day after the procedure. Upon discharge, the patients are instructed to rest for 3 weeks with a very progressive return to the sitting position according to their level of pain.

COMPLICATIONS

The only significant postoperative complication I experienced is infection. In a first study, the infection rate was at about 8%; in a later study published in 2004 it reaches 14%. Consequently, all the modifications of my surgical management were dictated by the need to avoid infection.

Most of the cases of infection manifested themselves secondarily by an increase in postoperative pain and a discharge of pus from the scar during the second week. All the patients with this complication are reoperated with the following protocol:

Incision through the old scar. The wound edges are debrided, all subcutaneous sutures are removed, the wound edges are carefully curetted, and the wound copiously irrigated with povidone-iodine (Betadine®) in saline. Only the skin is closed, with nonabsorbable sutures, over a suction drain. The drain is removed within five to ten days, depending on how soon drainage stopped, and on the result of cultures of the drainage fluid. Patients are also put on long-term antibiotics. The regimen consists of parenteral antibiotics for a period of one week. Empiric treatment is with amoxicillin and an aminoglycoside. Once the results of cultures and the sensitivity data are available, the choice of antibiotics is guided by the laboratory results. Subsequently, the patients

continue on oral antibiotics for another three weeks. The most common pathogens found were *Staphylococcus aureus* and bacteria commonly present in the digestive tract (*Enterococcus faecalis*, *Streptococcus anginosus*, *Escherichia coli*, *Streptococcus agalactiae*). Using this protocol, all infections were cured.

I once thought that the deep layer resorbable sutures might be responsible for some cases of infection and thus for a short while I closed the surgical wound with one layer only of non absorbable skin suture. However, in some of these patients, I noticed afterward that the soft tissues covering the coccyx area were thinner than when using a closure with deep layer sutures, and therefore I came back to the usual closure pattern. Along the years, I also noticed that the infection rate was much higher in patient who prematurely returned to their previous activities, and consequently I advise patients to really rest for 3 weeks after the operation.

In my experience there is 3 important factors which prevent post-operative infection:

- *Antibiotics*: I have no doubt that they are useful. As a matter of fact, I once moved to a another hospital where I had a sudden and dramatic raise of the infection rate. It soon became clear

that the reason was a change in the prophylactic antibiotic regimen. The new facility had a policy of prophylactic antibiotics being given as a single intraoperative dose or even no prophylactic antibiotics. Returning to 48 hours of prophylactic antibiotics brought back the infection rate at the previous level.

- *Topical skin adhesive*: the use of topical skin adhesive was the crucial step in the prevention of post operative infection. From the day I recovered the skin stitches by glue the infection rate falled abruptly and indisputably.

- *I also noticed that the infection rate was much higher in patient who prematurely returned to their previous activities, and consequently I advise patients to really rest for 3 weeks after the operation.*

There is a last matter for which I have no certainty: whether a postoperative suction drain is necessary. I have used it on a regular basis for decades but the last few years, I stopped using it, except in rare cases where there is abnormal bleeding or a large cavity to drain.

Other complications were exceptional.

In one case there was a post-traumatic (fall) reopening of the wound

In two cases, patients who did not respect the postoperative rest presented after the first month with an increase of their pain. The MRI showed a large fluid collection, which was not infected at the bacteriological exam.

In one case, the MRI done for persistent pain showed that a piece of the drainage tubing was left in the operating site.

All thoses complications were treated using the same approach as for post operative infections.

Even though the surgical option is quite a jump for the patients it seems that their functional situation don't afford them any choice; fortunately, as we will see later, they seldom regret this option.

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