



Anal Wound and Sphincter Repair from under Its Floor by Buried Stitches

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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ABSTRACT

Objective: Blunt and penetrating injuries to the anus and rectum are uncommon. Considerable debate remains regarding the optimal treatment of anorectal injuries. This report offers a technique for repair of anorectal wound from under its floor.

Design: The anorectal wound was repaired by multiple double incomplete circular stitches under its floor.

Setting: This study was conducted in the General Surgery Department, Zagazig University Hospital, Egypt.

Patients: This study was undertaken on 20 patients (15 male and 5 female with mean age of 40.7 years) with anorectal wounds from April 2012 to May 2014.

Interventions: Under general or spinal anesthesia, primary repair of anorectal wounds by special stitches passed under the wound floor not crossing the wound edges, without fecal diversion and presacral drainage.

Results: In 12 patients, the technique was done under general anesthesia and the remainder under spinal anesthesia. The anorectal wounds were healed within 8 weeks. Early complications

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included superficial wound infection in 15 patients, urine retention in 9 patients, and transient incontinence in 18 patients for period ranged from 4 to 6 weeks. No permanent incontinence, no deep infection, no abscess or fistular formation, no keyhole deformity, and no mortality were recorded.

Conclusion: Our technique for primary repair of anal wound and sphincter is simple, effective, and no need for fecal diversion or presacral drainage.

Keywords: Anorectal wound repair; buried stitches.

1. INTRODUCTION

The anal sphincter is a very complex sensory and muscular mechanism and its injury is rarely life threatening but it almost always leads to a heavy disruption of the quality of life. Anal sphincter injuries can be classified as: violent injuries at peace time, war injuries (e.g. by bullets and shrapnels), sexual injuries (both auto and hetero injuries), childbirth (most common), accidental injuries and iatrogenic injuries during surgery [1,2]. The anal canal and sphincter is anatomically well protected by the fat tissue in the ischio-rectal area, and by the gluteal muscles and pelvic structures. This is why these injuries are not frequent and they are mostly caused iatrogenically [3,4]. The anal canal is injured more frequently than rectum due to its relatively superficial position, but the injuries may be involving the extraperitoneal rectum [5,6]. The aim of surgery is to control infection, promote anorectal wound healing and to preserve the anal continence with less invasive procedure [7,8]. This research offers a technique for primary repair of anorectal wounds and sphincter without need for fecal diversion or presacral drainage.

2. PATIENTS AND METHODS

During a period of 2 years between April 2012 and May 2014, 20 patients (15 males and 5 females, with median age of 40.7 years; range 32-55 years) with anorectal wounds and sphincter injuries only have been enrolled in this study. This research was discussed and approved from ethical committee of Zagazig University at January 2012. All information about the technique was discussed with all patients, and all patients gave writing consent for inclusion of their data and photo in this study. In 12 patients the anorectal injuries are result of direct trauma and in 8 patients iatrogenic during repair of anal sphincter after badly healed anorectal wounds. Under general anesthesia in 12 patients and spinal anesthesia in 8 patients, the patient was put in lithotomy position. The wound was

explored until reach the wound floor and good hemostasis was achieved. Primary repair of anal sphincter and wound was done by multiple double incomplete circular stitches passed under the wound floor using Vicryl No. 0 on round needle. The needle with vicryl passed from one edge of wound through sphincter muscle, under the wound floor until reaching to other wound edge, then return in opposite direction to the starting point by same manner. Now, one stitch becomes complete and two threads of stitch were holded by one tissue forceps. Multiple stitches were used, where with tied them the edges of wound and anal muscles become close to each other Figs. 1a-d. So, primary repair of anal sphincter and wound was achieved by these stitches without forming closed space which allows for free drainage of wound through its length and depth Figs. 2a-d and 3a-c. Local wound care was continuous cleaning of wound and application topical ointment containing promotes healing agent and antibiotic. All patients received preoperative broad spectrum antibiotic and continues for 7 days postoperative. The follow up period was ranged from 4 to 28 months (Mean 18 months) for this patients group.

3. RESULTS

Our technique was done under general anesthesia in 12 patients and 8 patients under spinal anesthesia. The threads of each stitch must be passed at long distance from both edges of anal sphincter muscles (3 cm) and just under the wound floor (0.5 cm) Figs. 1a,b. The stitches were tied only after finishing of putting all needed stitches. This technique is easier with using long, curved and rounded needle. All anorectal wounds were healed within 8 weeks. Early complications included superficial infection in 15 patients, urine retention in 9 patients and transient incontinence in 18 patients for period ranged from 4 to 6 weeks. No deep infection or abscess formation or fistula formation or permanent incontinence or keyhole deformity were recorded in any patient.

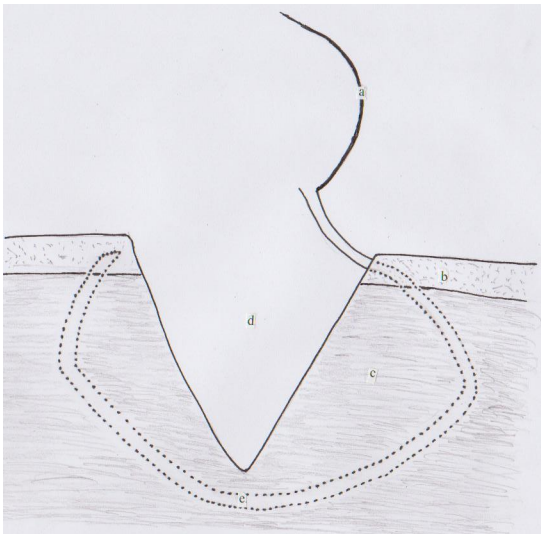


Fig. 1a. (a) Needle with Vicryl No. 0. (b) Subcutaneous and submucosa layer. (c) Sphincter muscle layer. (d) Anal wound. (e) Incomplete double circular berried stitch. The needle with Vicryl were passed from one wound side under the superficial layer, through the muscle sphincter, under the wound floor until reaching the superficial layer from other wound side, and return in opposite direction until coming from near the first step

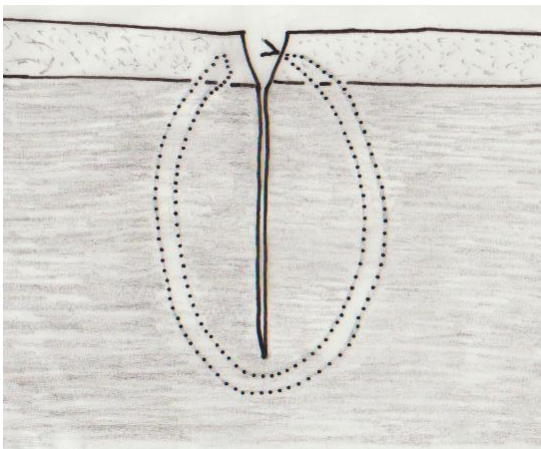


Fig. 1b. The incomplete double circular berried stitch was tied putting the two sphincter ends close to each other without forming closed space of the wound allowing for free drainage of anal wound. This leads to good wound healing without need fecal diversion

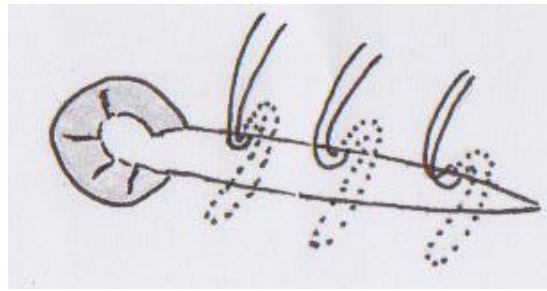


Fig. 1c. Wound extended from anus to the perianal area with injury to anal sphincter. Primary repair was done by using multiple double incomplete circular stitches under the floor of the wound. All required stitches for good repair of wound were held by tissue forceps before tied them

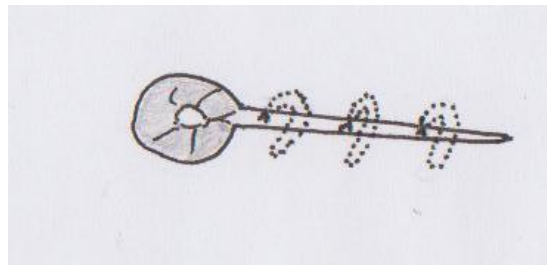


Fig. 1d. All stitches were tied putting the muscles ends and wound edges close to each other without producing closed space of wound. This technique for repair anorectal wound allows for free drainage of all depth and length of wound during healing process producing good healing without needing for fecal diversion and presacral drainage

4. DISCUSSION

Until now, there is no standard approach for managing anorectal injuries. The treatment of an anal sphincter injury can be conservative or surgical, urgent or postponed, with or without stoma [9]. An injury causes an anal sphincter dysfunction and, very rarely, a dysfunction of neurotrophic nerves or a resulting neuropathy induced dysfunction and substantial morbidity. Controversy is still present about management of anorectal injuries [10,11]. Classical management of anorectal injuries included four components fecal diversion, distal rectal washout, transperineal presacral drainage and primary wound repair [12-14]. This management is associated with extensive surgery, long morbidity, and deep and extensive sepsis at the site of primary wound repair [15]. Primary wound

repair by classical stitches (simple interrupted or mattress stitches) produces closed space of the wound, leading to deep sepsis even with fecal diversion. There have been a few reports of management of anorectal injuries without colostomy to make surgery less extensive, but this form of treatment not recommended due to bad results in form of extensive deep sepsis at the site of primary wound repair [16]. In our technique, the primary repair of anorectal wounds by special stitches (double incomplete circular stitches) were succeeded in putting the wound edges close to each other without forming closed space. This will allowed for free drainage of all length and depth of anorectal wound, preventing deep sepsis and leading to good healing of wound and sphincter even without fecal diversion.



Fig. 2c. Same case after 4 weeks appears small superficial wound with good healing of anal sphincter



Fig. 2a. Anal sphincter injury and wound repaired by our technique. A muscle ends of anal sphincter were putting close to each other by multiple double incomplete circular stitches under wound floor. No any stitch crossed the wound from inside



Fig. 2d. Same case after 6 weeks appears good healing of anal sphincter and wound without any complications



Figure 2b. Same case appears after tie all stitches



Fig. 3a. Anorectal wound was due to direct trauma leading to much injury to anal sphincter



Fig. 3b. Same patient, repair of the wound and sphincter was done using three incomplete double circular stitches under the wound floor



Fig. 3c. The stitches were tied, putting the edges of muscles and wound close to each other without forming closed space of wound

5. CONCLUSION

Our technique can be repaired the anorectal injuries without colostomy or presacral drainage with good results in anatomy and physiology of anal canal and sphincter.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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