

# Fascia Repair With Vicryl Suture in 636 Urologic Surgeries

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## Research note

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# Abstract

**Objective:** The procedure for closing the fascia after surgery should be quick, easy, and persistent, yet comfortable for the patient. Polydioxanone thread is not widely available in Iran and we use Vicryl kind instead for almost all patients. This study was conducted in two years from January 2018 to January 2020 at Imam Reza and Imam Khomeini Medical Center in Ardabil. Fascia was treated with Vicryl suture of 0 or 1 in a double layer and in continuous form for all patients in the Urology Department.

**Results:** 636 patients were evaluated in these two years. The fascia healing was at the site of inguinal, midline Gibson and flank. The fascia relief is bilaterally treated with Vicryl suture and continuously in all urologic surgeries with a very low rate of wound infection and hernia at the place of operation. At the same time, the amount of pain at the place of operation and the formation of sinus sores is very low.

## Introduction

The procedure for closing the fascia after surgery should be quick, easy, and persistent, yet comfortable for the patient. Complications at the surgical place can include infection, hernia or rupture of fascia. Non-absorbable kinds of thread were commonly used in fascia repair such as nylon and polypropylene yarn. But polydioxanone thread (PDS) has created lots of interest(1). However, this thread is not widely available in Iran and we use Vicryl kind instead for almost all patients. Reports of these patients are represented in this study.

Polydioxanone thread is not widely available in Iran and we use Vicryl kind instead for almost all patients.

This cross-sectional descriptive study was conducted in two years from January 2018 to January 2020 at Imam Reza and Imam Khomeini Medical Center in Ardabil. By whole sampling method, 636 patients were included in this study.

Fascia was treated with Vicryl suture of 0 or 1 in a double layer and in continuous form for all patients in the Urology Department. These patients included varicocele surgery, inguinal hernia in children and adult patients, open prostate (retro pubic or suprapubic) surgery, radical prostatectomy surgery, radical kidney transplant surgery (Radical cystectomy), bladder stone surgery(cystolithiasis), partial cystectomy, ureterolithotomy, Ureterocystostomy, radical nephrectomy, partial nephrectomy, nephrolithotomy and adrenalectomy which has been healed with Vicryl 0 or 1 or 00 in continuous form in all Fasciae. All patients were followed up for 6 months to two years. We had no exclusion criteria during this time. Vicryl suture was used in children or adults and patients with or without surgery record. The suture depth and distance were 1 cm. The fascia was healed in two layers. In larger incisions the healing begins from the two ends of the wound separately; the nodes in the center are made with two sutures and the sutures are returned to the top of the wound and tied with the end (at least four nodes). In smaller wounds, such as varicocele or hernia inguinal, suture begins from one top of the wound and again we have this step for second layer and tied to the end of the suture. The subcutaneous skin is usually healed by chrome and the skin is amended by nylon. After that, Patients are followed for 6 months to two years for side-effects.

Prophylactic antibiotics applied half an hour before the incision included Cefazolin and in the case of allergy, clindamycin would be used. All surgeries were performed by one surgeon. Patients were followed up for 6 months to two years for infection, wound opening, hernia and pain at the wound place.

The mean of standard deviation and cumulative percentages were used as distribution statistics performed using SPSS version 21.

## **Main Text**

636 patients were evaluated in these two years (2018–2020). The fascia treatment was at the site of inguinal, midline, Gibson and flank. The suturing was done for all patients with Vicryl and in continuous form in two layers. Because we do not have the inclusion and exclusion criteria, all patients were included in the study within mentioned two years.

We have 201 adult inguinal hernia repairs that just one of them got surgical site infection. He was 66 y/o with diabetes mellitus and severe obesity. His infection relieved with 2-week antibiotic treatment. From 108 patients who underwent retro-pubic prostatectomy just one of them yielded to incisional hernia without any extra treatment. He has diabetes mellitus.

One of the 34 patients with supra pubic prostatectomy got surgical site infection that was treated with 2-week intravenous antibiotic therapy. He has no other disease except 2-month carrying Foley for urinary retention. The culture of wound discharge was E-coli. At last, one of the radical nephrectomy patients because of renal cell carcinoma yielded to flank incisional hernia. She was 59 y/o woman who had BMI = 34.5.(Table 1)

We have no incisional problem in radical cystectomy or even kidney transplantation patients.

Table 1  
Demographic and clinical characteristics of 636 patients

	Male	Female	Age	BMI	DM	Complications
Varicocele	99	0	19–31	20–34	-	-
Inguinal hernia, adult	201	0	21–75	20–32	144	one surgical site infection
Inguinal hernia, Pediatrics	123	0	1–12			-
Open Prostatectomy retropubic	108	0	59–89	26.7–33	99	one incisional hernia
Open prostatectomy Supra pubic infection	34	0	66–74	24.6–35	29	one surgical site infection
Radical Prostatectomy	7	0	65–81	22.1–26.5	2	-
Kidney transplantation	4	7	24–65	23–30.1	0	-
Radical cysto-prostatectomy	7	0	47–76	22–27	1	-
Cystolithotomy	10	1	42–78	24.4–36	9	-
Partial cystectomy	2	0	78–85	28.7–30.6	-	-
Ureterocystostomy (Boari flap)	2	1	44–56	22.2–25.7	-	-
Radical nephrectomy incisional hernia	6	9	39–78	24.7–34.5	-	one incisional hernia
Partial nephrectomy	4	1	67–70	27.6–28.2	2	-
Nephrolithotomy	8	0	26–54	21.9–27	3	-
Adrenalectomy	2	0	65–69	24–26.1	2	-

It is said that in the healing of fascia, if infection or skin dilation are under suspicion, it is better to apply the sutures individually (2). In another study, comparisons of polydioxanone or prolene showed that PDS was better (3). Complications of surgical wounds are divided into types of early and late wounds. Complications of surgical wounds are divided into two types of early and late wounds. Early

complications can include infection, dehiscence, or sinus formation at the site of the wound. Herniated surgical site can be a late complication. The type of used suture can be effective in the above complications(4–6).

Many surgeons still apply nylon suture for fascia and are afraid of absorbent kind. Although, similar studies are common in the field of general surgery, they are rare in the field of urology. Previous studies have shown a higher rate of infection in non-absorbable suture (7). It also increases sinus formation in the wound with unabsorbed suture(8). But we should consider that an important factor in wound infection is the prolongation of surgical time. However, the rate of wound and hernia infections in the surgical area was negligible in our patients, perhaps due to a cleaner urologic surgical environment and a shorter duration of surgery. In urologic surgery only for the case of radical surgery cystectomy the intestine is opened and in this case in our study we had no wound infection or hernia. Regarding renal transplantation where the immune system in patient was weakened, we also had no case of wound infection or wound separation or hernia at the surgical site. However, there have also been studies in which the opening of the wound has been more with the absorbent suture (9).

Interestingly, in a meta-analysis, the amount of hernia at the surgery site with an absorbent suture was less than that with a non-absorbable kind(4). However, in this study all surgeries were elective not emergency but all performed by the same surgeon. Also in a study, the rate of hernia and wound opening was lower in monolayer healing mass closure compared with layered closure and the site pain was lower with absorbent suture such as Vicryl (8).

There is still much controversy over whether the suture is continues or interrupted(10, 11). Some people prefer Continues because they believe that pressure spreads throughout the wound (12). However, the interrupted kind can cause wound infection and site hernia by creating ischemia and necrosis, due to the presence of multiple nodes and varying degrees of nodes tension. On the other hand, Vicryl as a multifilament suture can increase wound infection (13). Because of high cost and inaccessibility of PDS we do not use it in our center.

The fascia relief is bilaterally treated with Vicryl suture and continuously in all urologic surgeries with a very low rate of wound infection and hernia at the place of operation. At the same time, the amount of pain at the place of operation and the formation of sinus sores is very low.

## **Limitations**

As the Nylon suturing in fascia is so prevalent, performing this study as a pioneering one was so prostrating.

## **Abbreviations**

PDS: Polydioxanone

BMI: Body mass index

## Declarations

Ethics approval and consent to participate:

The research followed the tents of the Declaration of Helsinki. The Ethics Committee of Ardabil uiversity of Medical Sciences approved this study. Written informed consent taken from all participants before any intervention. Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

Consent to publish:

Written informed consent taken from all participants for publication.

Availability of data and materials:

All data and materials are available.

Competing interests:

The authors declare that they have no competing interests.

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Authors' contribution:

MRH was the principal investigators of the study. GA revisited the manuscript and critically evaluated the intellectual contents. All authors participated in preparing the final draft of the manuscript, revised the manuscript and critically evaluated the intellectual contents. All authors have read and approved the content of the manuscript and confirmed the accuracy or integrity of any part of the work.

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Implication for health policy/practice/research/medical education:

It is common in Iran that fascia be sutured with non – absorbable thread especially Nylon. Although delayed-absorbable sutures like PDS (Polydioxanone) are more routine worldwide. Unfortunately in Iran these threads are lacking therefore we have used Vicryl absorbable suture rather PDS and Nylon to achieve delayed-absorbable sutures advantages and elude non-absorbable sutures disadvantages

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