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Original article

Suture Materials in relation to Wound Care in Women Undergoing Gynecological Oncology Operations

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ABSTRACT

Background: The post-operative recovery and qulaity of life are impacted by the suture materials and wound closure techniques used. Regarding wound care in female patients following gynecological oncology procedures, one important consideration is believed to be the type of suture material selected for the abdominal wall closure. Therefore, our goal was to compare the wound outcome of various suture types.

Methods: This cohort study was carried out in the oncology unit of obstetrics & gynecology department in Zagazige University Hospitals, Sharkia, Egypt. During abdominal wall closure using mass suture technique, our study included two groups of 36 patients each, one group receiving PDS sutures and the other Vicryl sutures.

Results: Patients in the Vicryl group experienced significantly higher pain severity and longer duration of pain compared to the PDS group. There was a significantly higher rate of wound dehiscence in the Vicryl group. Interestingly, the PDS group had a significantly higher rate of suture sinus formation. The Vicryl group showed a significantly higher rate of incisional hernia formation. Although not statistically significant, there was a trend towards higher infection rates in the Vicryl group.

Conclusion: PDS sutures may offer advantages over Vicryl sutures in terms of postoperative pain, wound dehiscence, and incisional hernia formation in gynecological oncology patients undergoing abdominal wall closure. However, the higher rate of suture sinus formation with PDS warrants further investigation.

Keywords: Suture Materials, Wound Care, Gynecological Oncology Operations.

INTRODUCTION

One of the surgical operations that is performed most commonly is the incision and closure of the abdominal wall. The iliac and pubic bones of the pelvis define the abdominal wall caudally, and the xiphoid process of the sternum and the costal borders define it cranially. It reaches the lumbar spine, which connects the pelvis and thorax and serves as an attachment point for a few structures in the abdomen wall. The abdominal muscles and their connected tendons are largely responsible for the integrity of the anterior abdominal wall. These muscles regulate the expulsive actions of coughing, urinating, defecating, and parturiting in addition to aiding in breathing. Additionally, they cooperate with the back muscles to rotate the trunk at the waist, flex and extend the trunk at the hips, and become rigid to protect the viscera [1].

Age, muscular mass, muscle tone, obesity, intra-abdominal disease, parity, and posture all affect how the abdomen looks. These variables could drastically change the topography and provide a serious challenge to the appropriate placement and selection of incisions. Understanding the abdominal wall's layered structure enables quick and secure entrance into the peritoneal cavity. Skin, subcutaneous tissue, superficial fascia, external oblique muscle, internal oblique muscle, transversus

abdominis muscle, transversalis fascia, preperitoneal adipose and areolar tissue, and peritoneum are the nine layers that make up the abdominal wall. There are blood arteries, lymphatics, and nerves everywhere [2].

The aponeuroses off abdominal wall muscles form two key surgical markers. Between the two rectus muscles, in the middle, is the linea alba. It's crucial to recognize this structure during midline incision since it was created by the merger of the transversus abdominis and the Apo neuroses of the external and internal oblique. The arcuat, which is situated beneath the rectus muscle about halfway between the sheath, is a second surgical marker. There is no posterior rectus sheath below the arcuate line. This anatomical observation happens when the transversus and oblique muscular aponeuroses cross in front of the rectus muscle [3].

Almost all vertical incisions utilized in gynecologic oncology surgery are midline incisions. The easiest incision to make is the midline incision, which may be quickly and readily extended in length to meet the surgical findings while causing the least amount of blood loss [4].

The argument between nonabsorbable and delayed absorbable suture materials is the most significant when it comes to selecting suture materials for fascial closure. For abdominal wall closure, there are supporters of both absorbable and nonabsorbable suture materials. While absorbable sutures made of polypropylene and nylon have historically been the preferred option, the introduction of polydioxanone has caused a surge in interest in absorbable sutures. These days, a mass closure employing polydioxanone—a delayed absorbable suture—is the most widely used closure method for midline laparotomies [5].

A number of meta-analyses and randomized trials have compared continuous and interrupted closures. Since continuous closure is quicker and less expensive than interrupted closure, it is usually advised. Between interrupted and continuous closures, there are comparable rates of dehiscence, wound complications, and incisional hernias. Theoretically, using continuous sutures over the whole incision can help distribute tension evenly. The possibility that a single knot or suture strand breaks, potentially disrupting the entire suture line, is a drawback of a continuous closure; nonetheless, this has been shown to be an incredibly uncommon cause of wound dehiscence **[6].**

METHODS

72 patients with gynecological tumors who presented to the oncology unit of the obstetrics and gynecology department at Zagazig University Hospitals in Sharkia, Egypt during the period from September 2023 to September 2024, were involved in this randomized clinical research. The patients gave their informed written consent. Each patient was given a code number and an explanation of the study's objectives. The Ethics Committee of the Obstetrics and Gynecology Department's Oncology Unit at Zagazig University Hospitals gave its approval to the study (IRB number 5772-9-12-2019). An informed consent was obtained from all patients.

Inclusion criteria:

Women with gynecological tumors attending oncology unit for elective gynecological operation with age> 18 years.

Exclusion criteria:

- Patient refusal.
- Patients with age < 18 years.
- Patients with history of previous abdominal surgery, pregnant patients, emergency surgeries and patients with advanced malignancies (inoperable malignancies).

We separated the participating ladies into two groups for the mass suture technique abdominal wall closure: Vicryl 1 operated on the second group of women while polydioxanone (Monofilament double loop PDS) sutures were used on the first group.

Surgical procedure:

The incision and closure of the wound were done using a standardized surgical technique. Drains under the skin were inserted. The majority of patients got subcutaneous heparin; the surgeon's standard protocol was followed for bowel preparation and antibiotic prophylaxis. Prior to the procedure, all patients were administered antibiotic prophylaxis using Ceftriaxone and Flagyl. If the procedure took more than three hours or the patient lost more than 1500 milliliters of blood, then another dose was given.

Following the procedure, the fascia in the first group was closed using two looped polydioxanone sutures (PDS), which were knotted in the middle and positioned at the proximal and distal ends of the incision. In the second group, absorbable Vicryl 2

was used to create continuous flowing sutures to seal tissue. A synthetic suture called Vicryl® can be absorbed for up to 70 days [7]. They employed closed suction drains. Staples were used to seal the skin, however they were taken out during the second week.

Intraoperatively:

Recorded were the anesthetic kind, surgical duration, blood loss/CC, and any complications that arose during the procedure.

Follow up

To evaluate the condition of the surgical wound, all patients had postoperative visits at the outpatient clinic. They had examinations to rule out the following wound complications:

• Seroma or hematoma: Blood or serous fluid buildup in the subcutaneous area without any indication of an infection [8].

• The Visual Analogue Scale (VAS) was used to measure the intensity of pain. A single handwritten mark is placed at one point along a 10-cm line, representing a continuum between the two ends of the scale: "no pain" on the left end (0 cm) and "worst pain" on the right end (10 cm). The scores are based on self-reported measures of symptoms [9]. The length of the pain and the painkillers used were noted.

• Pus discharge, and any such discharge for up to one month, was considered as a wound infection [10].

• Wound dehiscence: a spontaneous or medically induced separation of the borders of the wound by more than 1 centimeter [11] (figure 1).

• Erythema and swelling around the wound that need to be treated surgically or with more antibiotics.

• For a month, there was a weekly follow-up to assess wound discomfort, incisional hernia (figure 2), and suture sinus development.

Statistical Analysis

The collected data were computerized and statistically analyzed using the SPSS program (Statistical Package for Social Science) version **27.0 (IBM, 2020)**. The Chi-square test was used to calculate the difference between qualitative variables. Independent T test was used to calculate difference between quantitative variables in two groups in normally distributed data.

RESULTS

There was no significant difference between both groups regarding baseline data (**Table 1).** There was no significant difference between both groups regarding past history (**Table 2).** There was no significant difference between both groups regarding obstetric history (**Table 3).** There was no significant difference between both groups regarding vital signs (**Table 4).** There was no significant difference between both groups regarding characters of cancer (**Table 5).** There was no significant difference between both groups regarding operative data (**Table 6).** There was significant difference between both groups regarding pain severity and duration, wound dehiscence, suture sinus formation and incisional hernia that were higher in group II than group I (**Table 7).**

Table 1: Baseline data and demographic data among studied groups

		Group I: PDS group (n=36)	Group II: Vicryl group(n=36)	P value
Age (years)	**Mean ± SD**	61.75±11.37	62.5±11.91	0.786
	Range	43-83	45-85	
Weight	**Mean ± SD**	77.25±9.38	75.80±10.71	0.545
	Range	62-95	59-94	
Height	**Mean ± SD**	1.67±0.04	1.66±0.05	0.163
	Range	1.59-1.75	1.59-1.75	
BMI	**Mean ± SD**	27.52±4.12	27.49±4.20	0.981
	Range	20.48-36.65	21.61-35.82	
Family history	**Yes**	19 (52.80%)	16 (44.40%)	0.486
	No	17 (47.20%)	20 (55.60%)	

Table 2: Past history among studied groups

		Group I: PDS group (n=36)	Group II: Vicryl group (n=36)	P value
Medication	**Yes**	14 (38.90%)	12 (33.30%)	0.629
	No	22 (61.10%)	24 (66.70%)	
Disease	**Yes**	19 (52.80%)	22 (61.10%)	0.482
	No	17 (47.20%)	14 (38.90%)	
Operation	**Yes**	6 (16.70%)	10 (27.80%)	0.263
	No	30 (83.30%)	26 (72.20%)	

Table 3: Obstetric history among studied groups

		Group I: PDS group (n=36)	Group II: Vicryl group (n=36)	P value
Parity	**Multipara**	35 (97.20%)	34 (94.40%)	0.562
	Nullipara	1 (2.80%)	2 (5.60%)	
Mode of delivery	**No**	1 (2.80%)	2 (5.60%)	0.547
	Vaginal	18 (50.00%)	13 (36.10%)	
	CS	17 (47.20%)	21 (58.30%)	

Table 4: Vital signs among studied groups

		Group I: PDS group (n=36)	Group II: Vicryl group (n=36)	P value
systolic Bl/p	**Mean ± SD**	117.77±14.16	117.5±8.74	0.921
	Range	100-150	110-140	
diastolic Bl/p	**Mean ± SD**	67.5±9.67	67.22±8.14	0.896
	Range	60-90	60-80	
Pulse	**Mean ± SD**	84.91±9.48	84.47±9.83	0.846
	Range	70-100	70-100	
RR	**Mean ± SD**	21.52±2.43	21.05±2.57	0.426
	Range	18-25	18-25	
Temp	**Mean ± SD**	37.04±0.46	37.01±0.50	0.789
	Range	36.2-37.8	36.2-37.8	

Table 5: Characters of cancer among studied groups

		Group I: PDS group (n=36)	Group II: Vicryl group(n=36)	P value
Duration of cancer/month	**Mean ± SD**	8.055±2.59	8.33±2.77	0.662
	Range	4-12	4-12	
Site of cancer	**Endometrial**	20 (55.6%)	18 (50%)	0.89
	Cervical	9 (25%)	10 (27.8%)	
	Ovarian	7 (19.4%)	8 (22.2%)	
Chemotherapy treatment	**Yes**	7 (19.4%)	8 (22.2%)	0.77
	No	29 (80.6%)	28 (77.8%)	

Table 6: Operative data among studied groups

		Group I: PDS group (n=36)	Group II: Vicryl group (n=36)	P value
Anesthsia	**General**	34 (94.40%)	33 (91.70%)	0.649
	Spinal	2 (5.60%)	3 (8.30%)	
Duration/min	**Mean ± SD**	120.5±20.78	125.1±24.7	0.4
	Range	80-205	83-197	
Blood loss/CC	**Mean ± SD**	406.94±65.6	405.5±66.3	0.929
	Range	300-500	300-500	
Complication during operation	**Yes**	5 (13.90%)	5 (13.90%)	-
	No	31 (86.10%)	31 (86.10%)	
Types of complication during operation	**Vascular injury**	2 (5.6%)	1 (2.8%)	0.55
	Organ injury (intestinal and or bladder injury)	2 (5.6%)	2 (5.6%)	-
	Complication of anesthesia	1 (2.8%)	2 (5.6%)	0.55
Hospital stay/days	**Mean ± SD**	4±1.30	4.30±1.45	0.351
	Range	2-7	2-7	

Table 7: Post operative complication among studied groups

		Group I: PDS group (n=36)	Group II: Vicryl group (n=36)	P value
Pain Severity Using VAS	**Mean ± SD**	2.55±0.69	3.44±0.99	**0.001**
	Range	1-4	2-5	
Duration of pain(days)	**Mean ± SD**	7.55±1.69	8.80±1.72	**0.003**
	Range	5-11	5-12	
Medication for pain	**ketolac IM, paracetamol, AB**	25 (69.40%)	29 (80.60%)	0.283
	Diclofenac IM, paracetamol, AB	11 (30.60%)	7 (19.40%)	
Wound dehiscence	**Yes**	1 (2.8%)	6 (16.70%)	**0.04**
	No	35 (97.2%)	30 (83.30%)	
Infection	**Yes**	3 (8.3%)	5 (13.9%)	0.45
	No	33 (91.7%)	31 (86.1%)	
Suture sinus formation	**Yes**	10 (27.80%)	2 (5.60%)	**0.011**
	No	26 (72.20%)	34 (94.40%)	
Incisional hernia	**Yes**	2 (5.6%)	8 (22.2%)	**0.04**
	No	34 (94.4%)	28 (77.8%)	

Figure (1): Wound dehiscence.

Figure (2): Incisional hernia.

DISCUSSION

Following abdominal closure, the patient's health and the wound's condition change during the dynamic wound healing phase. Choosing the right suture material is just one of several factors that influence how well a wound closes. A foreign-body tissue reaction results from the implantation of sutures, a foreign substance, into human tissues. Choosing the right suture material to close the abdominal wall remains challenging even with advancements in surgical techniques [12].

Every wound—whether caused by accident or acquired after surgery—is only a break in the tissue's normal continuity. Tissue that has been severely damaged to the point where it cannot heal on its own (without problems or potential disfigurement) needs to be kept in opposition until the healing process gives the wound the strength to sustain stress without the need for mechanical support [13].

The choice of wound closure material is just as crucial as the surgeon's expertise and technique. The goal of any surgeon is to safely close abdominal incisions in order to avoid complications including intraperitoneal adhesions, scar hypertrophy, dehiscence, wound infection, and incisional hernia [14].

Numerous variations of suture materials and techniques have been explored and promoted at various points in time from the beginning of surgery history. When it comes to vertical abdominal incisions, no single suture material or technique has produced a completely satisfying outcome. From single layer closure to layered closure, there have occasionally been new recommendations and modifications that support various suture materials, such as nylon, vicryl, prolene, steel wires, chromic catgut, PDS, etc. This merely demonstrates that no single approach has matched every ideal need. At least some of the wound healing goals should be

met by every suture material used to close the wound [15].

The best way to close a wound has not yet been found. Technically speaking, it should be so straightforward that a trainee can do the procedure with outcomes on par with those of a master surgeon, without interfering with the pathophysiology of wound healing and with the lowest possible risk of problems after surgery [16].

One frequent side effect of emergency laparotomy is abdominal wound dehiscence. In addition to causing a rise in healthcare costs, wound dehiscence is associated with a significant morbidity and fatality rate. In order to lower postoperative morbidity and mortality, prophylaxis is crucial. Many patients have inadequate nutritional condition, and they frequently present themselves later than expected. This increases the frequency and severity of wound dehiscence. The method of closing the abdomen and the type of suture employed have an impact on wound dehiscence [17].

Many research have been done assessing an overwhelming range of suture materials and closure methods. Since most studies have not found any discernible differences between emergency and elective procedures, the prevailing wisdom in the west currently revolves around some kind of running mass closure of the abdomen. In order to get around the issue of the continuous sutures cutting out effect, a novel interrupted X technique was developed, which demonstrated a lower incidence of wound dehiscence [18].

Because of its more recent characteristics, Polydiaxanone (PDS), a novel suture material, was introduced to lower the morbidity and death rate of laprotomies. PDS, or polydiaxanone, is monofilament. It absorbs slowly; after two weeks, around 70% is still there, after four weeks, about 50% is still there, after eight weeks, about 14% is still there, and until roughly ninety days, there is very little absorption. Polypropylene has an infinite tensile strength (> 1 year) [19].
In this study, the mass suture technique was used to close the abdominal wall, and the wound outcomes were compared between two types of suture materials: PDS (polydioxanone) and Vicryl (polyglactin 910). This cohort study was conducted at Zagazige University Hospitals in Sharkia, Egypt, in the obstetrics and gynecology department's oncology unit. Our study involved two groups of 36 patients each, one receiving PDS sutures and the other Vicryl sutures during abdominal wall closure using mass suture technique. Age, weight, height, BMI, and family history did not significantly differ between the two groups in our study.

This consistency with other comparable research in the field and the homogeneity of baseline parameters are critical for guaranteeing the validity of our comparisons [5].
In our investigation, there were no discernible variations between the two cohorts with respect to past medical history, including drug usage, illnesses, and surgeries. The groups' obstetric histories were similar in terms of parity and delivery method. This correspondence between the obstetric and medical histories is significant because these variables may affect wound healing and surgical complications [5].

In our investigation, there were no appreciable variations in preoperative laboratory results or vital signs between the Vicryl and PDS groups. For an accurate comparison of surgical outcomes, there must be similarity in preoperative health state. Our results are consistent with prior research highlighting the significance of adjusting for preoperative variables when comparing surgical outcomes [20].

Regarding cancer characteristics (duration, site, chemotherapy treatment) and operative data (anesthesia type, duration of surgery, blood loss, intraoperative problems), our study did not find any statistically significant differences between the groups. To isolate the impact of suture material on wound outcomes, this equivalency is crucial.

Pai et al. [5] identified polypropylene and polydioxanone as the best suture materials for abdominal wall closure following elective laparotomy. They stated that the PDS group had a much shorter surgical time than the other group, indicating a significant difference in length between the two groups.

The most noteworthy results of our study, which demonstrate significant differences in a number of postoperative outcomes between the PDS and Vicryl groups, were that patients in the Vicryl group had pain that was considerably more severe than in the PDS group (3.44 ± 0.99 vs. 2.55 ± 0.69, p=0.001) and that it lasted longer (8.80 ± 1.72 vs. 7.55 ± 1.69 days, p=0.003).
This result is in line with research by Xie and Ning [21], which similarly found that PDS sutures reduced pain ratings. PDS's extended absorption period may help to lessen pain by reducing the inflammatory response.

Singal et al. [22] stated that less pain was experienced after surgery when PDS was used for abdominal closure. Our findings agreed with the research mentioned above. Puneet and Mohammed [23] "A statistically significant increased risk of chronic pain was observed after using Prolene in comparison to PDS II and PDS Plus," the study's conclusion stated. While wound pain was observed with non-absorbable sutures, there was little difference between absorbable and non-absorbable sutures.

Joshi et al. [24] revealed that, in order to close the subcuticular skin, sutures were placed using monofilament vicryl 3-0. Nylon 3-0 was used for the application of mattress sutures. The subcuticular suture group had a higher percentage of post-operative pain analysis patients (56%) seeking supplemental analgesia than the three mattress suture group (20%). A similar study done by Ibrahim et al. [25] concluded that, in comparison to interrupted sutures, subcuticular stitches during a Caesarean section were linked with significantly higher post-operative pain.

In our investigation, the Vicryl group experienced a noticeably greater rate of wound dehiscence (16.70% vs. 2.8%, p=0.04). It's interesting to note that the PDS group's suture sinus creation rate was substantially greater (27.80% vs. 5.60%, p=0.011). Incisional hernia formation was substantially more common in the Vicryl group (22.2% vs. 5.6%, p=0.04). There was a trend toward greater infection rates in the Vicryl group (13.9% vs. 8.3%, p=0.45), however it was not statistically significant. PDS's prolonged wound care may improve fascial healing over time and lessen the development of hernias.

This is consistent with results from a meta-analysis conducted by Shrivastava [26], which indicated that braided sutures such as Vicryl had increased rates of wound dehiscence. PDS's monofilament construction may lessen tissue drag and bacterial adhesion, which could improve wound integrity.

This pattern is in line with Kailas [19], who hypothesizes that lower infection rates could be linked to monofilament sutures like PDS because of decreased bacterial adherence.

However, Sajid et al. [27] found no statistically significant differences in the risk of incisional hernia, wound dehiscence, suture sinus development, and surgical site infection between PDS and prolene/nylon suture materials.

In order to compare two suture materials—the slowly absorbable Polydioxanone and the non-absorbable Polypropylene—for abdominal closure, Albahadili et al. [28] conducted a study. In contrast, no patient required another operation for wounds healed with polydioxanone. Of the 133 patients, 11 (8.3%) complained of wound sinuses requiring further procedure.

In 48 New Zealand White rabbits, Majeed et al. [29] tested a single layer running suture with the slow absorbable material PDS 4/0 and a non-absorbable material polypropylene 4/0. There were no discernible variations between the two sutures' strengths. The tensile strength of the wound closure was unrelated to the suture material's composition.

Singal et al. [22] show that there is no discernible difference in the rates of hernia, infection, and wound dehiscence between nylon and PDS. On the other hand, there was less postoperative sinus formation when PDS was used for abdominal closure. Our findings ran counter to the previous research.

Postoperative wound sinus development rates were reported by Khan et al. [30] to be 24% in the non-absorbable group (polyamide) and 16% in the absorbable group (polyglyconate). They came to the conclusion that for midline abdominal closure, slowly absorbable suture material seems to be preferable to non-absorbable suture material.

"There was a statistically significant higher risk of knot palpability, and suture sinus development following the use of prolene compared to PDS II and PDS Plus," Puneet and Mohammed [23] concluded. While discharge, dehiscence, and suture sinus were observed in non-absorbable sutures, there was little difference between absorbable and non-absorbable sutures.

After closing Laparotomy incisions, Parell et al. [31] examined the effects of absorbable and non-absorbable sutures on wound dehiscence. A total of 130 participants (n = 100%) were included in this trial, and they were split into two equal groups, group Vicryl and group Prolene, each with 65 patients. 6.2% (n=4) of the cases in which Prolene was utilized resulted in wound dehiscence, whereas 21.5% (n=14) of the cases involved the use of Vicryl sutures. Significantly more wound dehiscence occurred after Vicryl than after Prolene's closure.

Singh et al. [32] evaluated the incidence of wound infection in 320 patients across the four randomized groups based on the closure method and suture used. Patients were classified as having an infected, uninfected, or ruptured abdomen using predetermined definitions and monitored for a

duration of two weeks. A number of highly significant risk factors for wound infection have been identified, including male sex, diabetes, anemia, malnutrition, and sepsis. In terms of wound infection rates, there were no statistically significant differences in the suture material (Prolene vs. Vicryl) and technique (continuous vs. interrupted). However, there seemed to be a lower frequency of wound dehiscence formation with delayed absorbable sutures (Vicryl).

In Pai et al.'s study [5], one hundred patients were involved. There was no discernible difference in age, BMI, co-morbidities, or surgical indications between the two trial groups (Prolene and Polydioxanone). The prolene group had a significantly higher rate of surgical site infection (p=0.031). Because the prolene group's surgery length was longer (p=0.020), a subgroup analysis was conducted, with only procedures lasting less than four hours being examined. Regarding surgical site infection, there was no difference between the two groups (p=0.320). The two groups did not significantly differ in terms of incisional hernia or burst abdomen.

According to Bloemen et al. [33], there was a trend favoring Prolene since the PDS group had a greater cumulative incidence of incisional hernias at the end of follow-up, as well as a higher overall incidence as evaluated by Kaplan-Meier analysis. However, these results lacked statistical significance.

According to Weiland et al. [34], using Prolene for abdominal fascial closure as opposed to PDS resulted in a significantly greater rate of surgical site infection.

According to Chalya et al. [35], using Prolene for abdominal fascial closure resulted in a higher rate of stitch sinus development than using PDS.

Polydioxanone and non-absorbable suture materials did not differ in the incidence of surgical site infection, according to Gaikwad et al. [36]. Gaikwad et al. made the analogy to nylon.

In comparison to non-absorbable suture materials like nylon and polypropylene, absorbable suture materials (polydioxanone) are linked to a higher incidence of incisional hernias, as demonstrated by Ireton et al. [37].

Kailas [19] found that, in emergency situations when there was no incidence of burst abdomen, the use of polydiaxanone (PDS II) was superior to the use of polypropylene (prolene) suture material approach, which had a 4.0% incidence of burst abdomen. Compared to polydiaxanone (PDS II) (06%), polypropylene (prolene) had a greater prevalence of wound infection (12.0%). Compared to polypropylene (prolene) suture material, which has an infection rate of 12%, the usage of polydiaxanone (PDS II), which has a low infection rate of 8%, was superior in emergency situations. For polydiaxanone (PDS II) sutures, the incidence of suture sinus was 1 in 25 instances (4%) and for polypropylene (Prolene) sutures, it was 3. According to Joshi et al. [24], there was no statistically significant difference in the rate of wound infection (discharge and induration) between the Mattress suture and Vicryl 3-0 for subcuticular skin closure groups.

Murtha et al. [38] discovered that the security profile of the barbed suture and 3-0 Polydioxanone in the closure of the Pfanensteil incision was comparable to the traditional approach utilizing PDS.

According to Kailas [39], no. 1 Polydiaxanone (PDS) suture material, when used for the closure of a midline laparotomy incision, is preferable to no. 1 Polypropylene (PPL) suture material when it comes to preventing major wound complications like burst abdomen, suture sinus, and wound infection.

This is in line with clinically supported findings from an earlier study, which found that slow-absorbable sutures were superior than fast-absorbable sutures in terms of the incidence of incisional hernia [40].

Conclusions

Finally, our study shows that PDS sutures may be superior than Vicryl sutures for gynecological oncology patients having abdominal wall closure in terms of postoperative discomfort, wound dehiscence, and creation of incisional hernias. Further research is necessary, nevertheless, because PDS has a greater incidence of suture sinus development. Our results may aid in clinical decision-making and add to the continuing debate on the best suture option in abdominal surgery. As usual, while choosing suture materials, surgeons should take into account the unique characteristics of each patient as well as the particular surgical needs.

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Consent for publication

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