

Outcomes of Wound closure of Pfannenstiel-Kerr or public incision for caesarean delivery by Polypropylene and Polyglactin sutures at Tertiary Care Hospital.

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Abstract

Objective: - To compare the outcomes of prolene and vicryl in caesarean delivery.

Study design: - Cross sectional study **Place of study:** - Department of Gyn/Obs Unit 2 PMCH Nawabshah **Material and methods:**-This study was done at Department of Gyne/ Obs unit 2 PMCH Nawabshah. Patients with transverse/pfannenstiel entry point during an elective/crisis cesarean area were recruited for this research. Patients with gestational diabetes, coagulation issues, hemodynamic ailments, septicemia or chorioamnionitis were excluded from this study.

Results:-This study included total 80 patients. In group A, 40(50%) patients were included in which Vicryl of different sizes was used. In group B, 40 (50%) patients were included in which Prolene of different sizes was used.. The use of Vicryl 0 showed infected wound in 1(1.25%) and pain in wound in 5 (6.25%) patients. Cosmetically the scar of patient was found to be good. The results of Prolene use in wound closure were little bit different as compared to vicryl. Infected wound was found in 1 (1.25%), 5 (6.25%), and 3 (3.75%) patients after use of Prolene2/0, 0 and 1 respectively. Pain in wound was found to be in 2(2.5%), 7(8.75%) and 2 (2.5%) patients after the use of Prolene 2/0, 0 and 1 respectively. Cosmetically, the wound resulted in good scar.

Conclusion: - Vicryl thread proved to be the better as compared to Prolene as Prolene 0 produced more infection as compared to all other sutures.

Keywords:-Pfannenstiel, Transverse, Vicryl, Proline.

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INTRODUCTION

The closure of wound aims at getting purpose of obliteration of dead space and the maintenance of tensile strength across the wound. There are various methods by which wound are closed. These include sutures, staples, tape and adhesives. Each material has its own specific pros and cons apart from indications. Suture material causes the wound to heal primarily till tissue is able to sustain stress without mechanical support¹. Considering suture material as foreign material, body tissue shows its reaction. Therefore it is necessary to make field sterile and take precautionary aseptic measures to prevent the risk of wound infection. Entanglements of wound mending like hypertrophic scars, wide scars and wound dehiscence result due to malnutrition of patient, incorrect suture selection and faulty closure technique causing tension in the wound².

The suture material can be classified into different ways either absorbable or non absorbable, monofilament or braided and

synthetic or natural. Absorbable sutures include Polydioxanone (PDS), Poliglecaprone (MONOCRYL) and polyglyactin (Vicryl). Non absorbable sutures include Nylon, Polypropylene (Prolene), Silk and polyester (Ethibond)³.

Polypropylene (Prolene) is an engineered, monofilament and non-absorbable. It is made out of an isotactic crystalline stereoisomer of polypropylene⁴. These are tough, long standing and colored blue. It is utilized for skin conclusion and delicate tissue guess and ligation. It has the benefits of insignificant tissue reactivity and toughness. Its disservices are delicacy, high versatility, expensive and hard to utilize. It is utilized in cardiovascular, ophthalmic, neurological, gynecological, hernia fixes and vascular anastomosis and so on. It is additionally utilized in obstetrical work on during Cesarean Sections⁵.

Polyglactin (Vicryl) is an absorbable, synthetic usually braided suture. It is used for soft tissue approximation and ligation⁶. The suture maintains its strength for 2 to 3 weeks. It is completely absorbed within 60 to 70 days. It is contraindicated in cutaneous wound closure exposed to air as it allows bacteria and irritants to migrate into the wound subsequently leading to infection. The decay timing of Vicryl is 75%, 50%, 25% at 2,3 and 4 weeks respectively⁷.

Caesarian section is the most commonly performed surgery on women throughout the world. Its rate has increased enormously in developed countries and is about 20-25% of all child-births. It is only 1.6% in Haiti and 59% in Chilean private hospitals⁸.

Currently, there are multiple surgical techniques in use for all elements of the caesarean section. But there is still no consensus developed on a single particular technique of closure of the abdominal wall. Some obstetrician close abdominal wall and skin with prolene and some prefer vicryl⁹. The women undergoing the procedure suffer pain and morbidity postoperatively. Moreover the financial loss is another effect not individually but also collectively on health care system. The appropriate use of sutures causes' patients' early recovery¹⁰.

The rationale of our study is to compare the use and outcomes of prolene and vicryl

postoperatively after caesarean delivery so that the patients get benefit financially and postoperative wound recovery.

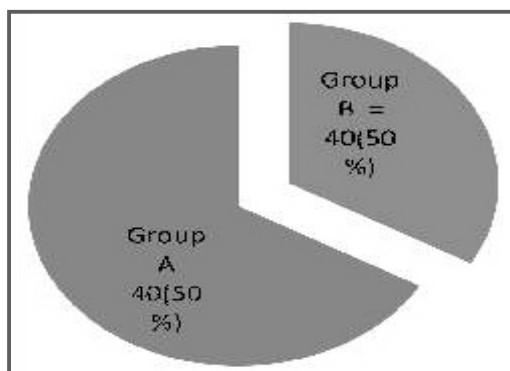
Materials and Methods

This is study conducted at Department of Gyne/Obs unit II at PMCH Nawabshah. This hospital is attending the patients not only from district Nawabshah but also of entire Sind. It consists of more than 1100 beds with all facilities of the treatment in every department. All the patients were admitted through OPD/Emergency department. Patients with transverse/pfannenstiel entry point during an elective/crisis cesarean segment were recruited for this research. Patients with gestational diabetes, coagulation issues, hemodynamic ailments, septicemia or chorioamnionitis were excluded from this study.

The patients suffering from labor pains or full term pregnancy were admitted. History of manifestations alongside exhaustive clinical stomach, pelvic, vaginal and back assessment separated from advanced rectal assessment (DRE) was finished. Ultrasound of mid-region and pelvis was done to know the size, position and movements of the baby. Duration of pregnancy was also calculated. Routine blood investigations were advised to get information about any coagulopathy and diabetes mellitus etc. Diagnosis was made and surgery was planned. Heart and sedation wellness was found a workable pace the strategy. In the wake of taking assent, tolerant was moved to O.T. All surgeries either elective caesarean or emergency caesarean section was done under regional anesthesia. Pfannenstiel or transverse incision was given in all patients. Prophylactic antibiotics were given at the time of induction of anesthesia. Wound was closed by subcuticular technique by Prolene and Vicryl. Dressing was opened on 2nd postoperative day, discharged and called back for follow up on 10th to 12th postoperative day. Wound was examined and conclusions were drawn.

RESULTS

This study included total 80 patients. In group A, 40(50%) patients were included in which Vicryl of different sizes was used. In group B, 40 (50%) patients were included as is shown in Pie Chart below



Of Group A 40 patients, 20 (25%) had closure of wound by Vicryl 0 and 20 (25%) patients wound closure was done by Vicryl 1. Of group B 40 patients, 10 (12.5%) patients wound was closed by prolene 2/0, 15 (18.75%) patients skin closure was done by proline 0, and 15(18.75%) patients had subcuticular closure by prolene 1 as is shown in table-1.

Table 1

S.No	Type Of Thread	No of Patients	Percentage
1	Prolene 2/0	10	12.5%
2	Prolene 0	15	18.75%
3	Prolene 1	15	18.75%
4	Vicryl 0	20	25%
5	Vicryl 1	20	25%
Total		80	100%

On 2nd postoperative day, dressing was changed and patients were called for follow up on 10th to 12th postoperative days. Cesarean wounds closed by Vicryl showed good results as compared to Prolene. The use of Vicryl 0 showed infected wound in 1(1.25%) and pain in wound in 5 (6.25%) patients whereas there was on any patients presented with wound dehiscence and stitch granuloma. Cosmetically the scar of patient was found to

be good. Same results were obtained after use of Vicryl 1 only the difference was that Vicryl 1 use caused more pain in 7 (8.75%) patients as is shown in table 2 and 3.

Table 2 Group A

S.No	Vicryl 0	Complications	No of patients
1		Infected wound	1(1.25%)
2		Wound Dehiscence	0
3		Cosmosis	Good scar
4		Stitch granuloma	0
5		Pain in wound	5(6.25 %)

Table 3

S.No	Vicryl 1	Complications	No of patients
1		Infected wound	1(1.25%)
2		Wound dehiscence	0
3		Cosmosis	Good scar
4		Pain in wound	7(8.75 %)
5		Sinus discharge	0

The results of Prolene use in wound closure were little bit different as compared to vicryl. Infected wound was found in 1 (1.25%), 5 (6.25%), and 3 (3.75%) patients after use of Prolene2/0, 0 and 1 respectively. Pain in wound was found to be in 2(2.5%), 7(8.75%) and 2 (2.5%) patients after the use of Prolene 2/0, 0 and 1 respectively. Cosmetically, the wound resulted in good scar. No any patient presented with sinus discharge postoperatively whereas 1(1.25%) after prolene 0 and 1 (1.25%) after use of Prolene 1 came with complain of discharging sinus. 1 (1.25%) patient postoperatively presented with subcutaneous hematoma after use of Prolene on 3rd postoperative day.

Table 4

S.No	Complications	Prolene 2/0 patients	Prolene 0 patients	Prolene 1 patients
1	Infected wound	1(1.25%)	5(6.25 %)	3(3.75%)
2	Pain in wound	2(2.5 %)	7(8.75%)	2(2.5 %)
3	Cosmetic	Good scar	Good scar	Good scar
4	Sinus discharge	0	1(1.25%)	1(1.25 %)
5	Subcutaneous hematoma	0	1(1.25%)	0
6	Skin separation	1(1.25%)	0	0

Discussion

Absorbable sutures support the wound temporarily until the wound is capable of resisting the stress. These are made of either natural or synthetic polymers. Natural polymers are collagen, surgical gut and chromic. They are absorbed by enzymatic degradation whereas synthetic polymers are chemicals are absorbed by hydrolysis. Synthetic sutures cause less tissue reaction.¹¹

In absorbable sutures, the first stage of absorption ensues from days to weeks and second stage losses the suture mass. The loss of suture mass is the result of leucocytes which destroy and remove the debris of suture material from the line of approximation¹².

Non absorbable sutures show a tissue reaction resulting in encapsulation of sutures by fibroblasts. Prolene does not degrade or becomes weak but it maintains tensile strength for up to 2 years. Therefore this material is useful in contaminated and infected wound but in our study Prolene has shown more infection as compared to Vicryl¹³. In a study conducted in 2011 by A.Slam, no difference was found in scar formation and wound infection by use of Vicryl 1. In our study, same results are found by use of Vicryl thread. But in our study the use of Prolene showed differences in this regard¹⁴. In another study on absorbable and non absorbable sutures used in closure of caesarean wound, it was noted that the skin separation was the complication found in patients closed by non absorbable

suture but in our study, skin separation was found in 1.25% patients after use of Prolene 2/0¹⁵. In a study, it was concluded that closure of subcutaneous fat prevented the formation of hematoma and seroma. But in our study no such results were found. 1.25% patients presented with subcutaneous hematoma postoperatively. In a study, there was no difference found in outcomes of skin closure from cosmetic point of view. Same was found in our study. The use of Prolene as well as Vicryl both resulted in good scar. No any mortality was found in any group like other studies¹⁶.

Conclusion

In our study, Vicryl thread proved to be the better as compared to Prolene as Prolene 0 produced more infection as compared to all other sutures. All sutures showed same results regarding the scar of the patient in follow up.

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