

Abdominal Wound Closure In Gynaecological Or Obstetrical Surgery With Vicryl® (Polyglactin910) Versus Vicryl Plus® (Polyglactin910 With Triclosan Added): A Comparative Study

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ABSTRACT

Background: surgical site infection is the most common post-surgical complication in surgical patients. The incidence of surgical site infection varies from 3-20% (or even more) in different part of the world. To date, the best method and material for skin closure has not been recommended by anybody. Triclosan is an antiseptic agent used for coating a suture material to prevent the infections. **Objective:** This case-controlled study was carried out to determine the comparative efficacy of sutures; vicryl® and vicryl plus® (triclosan, an antiseptic incorporated with suture), in reducing surgical site infection in laparotomy for clean Gyn/Obs operations. **Material and method:** This case-controlled study was carried out in Dept. Of Gynae/Obs at Nepalgunj Medical College Teaching Hospital, Kohalpur. The period of the study was from Jan 2018 to January 2019. A total of 50 participants were enrolled in the study, who met the inclusion criteria. The patients were divided into two groups A and B, each consisting of 25 patients. The patients were allocated in the groups alternately to remove bias. The Group A consisted of patients where Vicryl plus® (Ethicon, Johnson & Johnson Company, Ahmadabad, India) polyglactin910 with triclosan) was used and Group B consisted of patients where vicryl® (Ethicon, Johnson & Johnson Company, Ahmadabad, India) polyglactin910 alone) was used. Patients whose abdominal wounds were found infected, pus swab for culture were taken and sent for aerobic culture and sensitivity. All patients received ceftriaxone and metronidazole single dose before operations prophylactically. **Result:** Surgical site infection in group A was 3 cases out of 25 (12%) and in group B it was 6 cases out of 25 (24%). Triclosan added polyglactin910 suture found to be statistically non significant concerning prevention of SSI as compared to polyglactin910 ($p=0.472$). The mean age of the study population was in group A was (29.76 ± 7.47) and in group B was (27.12 ± 7.42).

Key Words: Abdominal Surgery, Surgical Site Infection (SSI), Vicryl® (Polyglactin910), Vicryl plus® (Polyglactin910 with added triclosan)

INTRODUCTION

Surgical site infection (SSI) is one of the most common post-operative complications encountered in surgical practice. Incidence ranges from 3 to 20 percent or more worldwide¹. Though Skin closure is an integral step of all abdominal route of surgery, yet there is no unanimity about the addition of antibiotics or antiseptics material in the wound closure²⁻⁴. Polyglactin910 is a synthetic, absorbable, braided suture made of polyglactin910 coated with a copolymer of L-lactide and glycolide (Polyglactin370) and calcium stearate. Polyglactin910 retains 65% of its tensile strength at 2 weeks and 40% at 3 weeks. It is extremely useful as a completely buried suture to approximate wound edges until the wound has gained enough strength to keep the edges from separating⁵. Complete absorption of Polyglactin910 occurs between 60 and 90 days. The antibacterial suture is an absorbable suture with an antimicrobial coating that was first developed using triclosan, a well-known antimicrobial material with a long history of safe use as the active agent in consumer health care products⁶. Most of the research

carried by other surgical disciplines to identify the efficacy of triclosan added suture but in gynae obs practice lacking this type of study. Thinking of this, the study was carried out to determine the effectiveness of skin closure with suture polyglactin910 versus polyglactin910 with triclosan in gynae /obs surgery. It may be noted that the price of vicryl plus® costs more (500) compare with vicryl®.

MATERIALS AND METHOD

The present study is a case-controlled hospital-based study. The study was conducted in the Gynae/Obs dept. of the teaching hospital kohalpur between Jan 2018 to Jan 2019.

A total of 50 participants were divided into two groups, group A (consisting of 25 patients) had closure with Vicryl plus® (polyglactin910 with triclosan) and group B (consisting of 25 patients) had closure with Vicryl® (polyglactin910) only.

Clinically wound infection was considered if the abdominal wound post operatively showed any of these signs:

1. Erythema of the wound margin with or without swelling.
2. Serosanguenous discharge
3. Frank abscess or pus discharge from the operative wound.

Only such patients were included who had no intra-abdominal infection i.e. abdominal hysterectomy, ovarian cyst removal, salpingectomy and caesarean section. All patients received ceftriaxone and metronidazole single dose prophylactically before operation.

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Follow up – on the 4th day of surgery wound was inspected for infections or earlier if the patients complains of pain at the wound site or fever. A swab was taken if any sign of infection was noted and sent for aerobic culture and sensitivity.

RESULTS

The Group A clinically showed evidence of infection in 3 cases (12%). One case had erythema and two cases had sero-sanguinous discharge. The aerobic microflora grew in one sample, it was, klebsiella. The Group B clinically showed evidence of infection in 6 cases (24%). One case had erythema and 5 cases had sero-sanguinous discharged. The aerobic microflora grew in four samples, it was, staphylococcus aureus in 5 cases and in one case it was klebsiella (Table I and II).

Infection	Yes	No	p-value
Group A	3(12%)	22(88%)	0.472
Group B	6(24%)	19(76%)	
Total SSI in 50 cases	9(18%)	41(82%)	

Table I: Showing infection clinically

Microflora grew in group A vicryl plus® 1 out of 3 and in group B vicryl® group 4 out of six. p value calculated by fisher,s exact test which was statistically not significant (p=0.472)

Microorganism	Yes	NO
Group A	Klebsiella-1 cases	2- cases
Group B	Klebsiella-1 cases and staphylococcus in 3 cases	2-cases

Table II: Microorganism growth in culture

Group A (vicryl plus®)- only one showed growth of klebsiella and in group B (vicryl®), grew klebsiella one case and three cases of staphylococcus aureus.

DISCUSSION

The present study consisting of a total of 50 cases admitted to Gynae/Obs ward, who had a laprotomy were divided into two groups each consisting of 25 patients/ group A had wound closure with vicryl plus and group B, was vicryl alone.

There is no unanimity about the use of triclosan added suture in reducing SSI of abdominal wound, as some studies have found it statistically significant in reducing the SSI and others have failed to confirm it.

Justinger C et al⁵ reported (4/9%) of SSI in triclosan added group (4.9%) and in non – added group (10.8%) (p=0.01) showing that in his cases, there was significant reduction in SSI in triclosan added group. Galal II et al.⁷ found (7%) SSI in triclosan group and in non triclosan group it was (15%) (p=0.011) which proved significant reduction of SSI in triclosan added group.

DienerMK et al⁹ reported the incidence of SSI in 14.8% cases (87 out of 587) triclosan added group (PDSII plus) as compared to PDSII group it was 16.1% (96 out of 598) (p=0.64) .

In our series the group which received viryl plus® (triclosan added) showed SSI in 3 cases (12%) and in plain vicryl® group 6 cases (24%) show SSI. (P value=0.472, Fischers exact test double tailed). Our study confirms the findings of Diener MK et al⁹. The variation of results with other workers namely Justinger C et al⁵ and Galal II et al⁷, may be due to the selection of the cases as they have included large numbers of emergency and potentially infected cases. The p value in the present study (p=0.472) is statistically non significant in reducing SSI.

CONCLUSION

vicryl® (polyglactin910) suture when used for the abdominal wound closure in clean Gynae/Obs operations fairs equally well as the vicryl plus® (polyglactin910 with triclosan added) as far as SSI is concerned. Moreover vicryl plus® is about 500 NRS costlier than the vicryl®. Hence more over there is no justification of using vicryl plus® in clean Gynae/Obs surgeries.

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