EVALUATION OF IRRADIATED POLYGLACTIN 910 AND BLACK SILK SUTURE CLINICALLY AND HISTOLOGICALLY IN MINOR ORAL SURGICAL PROCEDURES

By

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ABSTRACT

Background and Objective : Suture materials are generally classified into two categories: non absorbable and absorbable. The non absorbable type used most often are Silk , Cotton , Nylon , Polyester (Dacron), Prolyprophylene (prolene) and Stainless steel . Where as the absorbable materials include Catgut, Collagen, Polyglycolic acid (Dexon), Irradiated polyglactin 910, polymeared glycolic acid and lactic acid sutures.

All suture materials whether absorbable or non absorbable, elicit a kind of inflammatory reaction within the tissue.

So to evaluate the difference in quality of non absorbable and absorbable sutures, the Black silk suture and Irradiated polyglactin 910 were compared clinically and histologically on various parameters.

Method : The study consist of 30 patients who were referred to the department of Oral and Maxillofacial surgery requiring minor oral surgical procedure. Patients were selected randomly and sutures were placed in the oral cavity after minor oral surgical procedure.

Black silk suture was placed on one side and Irradiated polyglactin 910 on the other. Post-operatively on 3rd, 7th and 14th day sutures were assessed clinically and histologically.

Results : The results of this study showed that there was mild tissue reaction on 3rd day in 80% of Black silk suture cases and 70% in case of Irradiated polyglactin 910 suture but no difference on 7th and 14th day.

In all the 30 cases, both type of sutures were retained. There was no case of any wound dehiscence and patient complaint with respect to both sutures in all the 30 cases. Hence there was no clinical significant difference between two type of sutures on 3rd, 7th and 14th day.

Histologically, on 3rd day epithelial lining was minimally present in 100% cases with respect to both sutures. But on 7th day epithelial lining was moderately present in 100% cases of Irradiated polyglactin 910 and prominently present in 100% cases of Black silk suture. On day 14, epithelial lining was prominently present in 100% cases of both type of sutures.

Inflammatory cells were moderately present in 100% cases of both type of sutures on 3rd day. On day 7, minimal presence in 30% cases of Black silk sutures and 70% cases of Irradiated polyglactin 910 sutures , moderate presence in 70% cases of Black silk sutures and 20% cases of Irradiated polyglactin 910 sutures. But on 14th day, there was minimal presence of epithelial cells in 40% cases of Black silk sutures and 80% of Irradiated polyglactin 910 sutures.

Histologically, granulation tissue was not present on day 3 in all the 10 cases with respect to both sutures. On day 7, minimal presence of granulation tissue was

seen in 100 % cases of Black silk suture and 20% cases with respect to Irradiated polyglactin 910 sutures where as moderate presence of granulation tissue was seen in 80% cases of Irradiated polyglactin 910 sutures. On the 14th day, there was minimal presence of granulation tissue in 80% cases of Black silk sutures and 20% cases of Irradiated polyglactin 910 sutures where as moderate presence was seen in 20% cases of Black silk sutures and 80% cases of Irradiated polyglactin 910 sutures.

Interpretation and conclusion : The Irradiated polyglactin 910 suture was more superior histologically than clinically compared to Black silk suture. There was no much difference between the two suture materials on the basis of clinical parameters. In all thirty patients the sutures were retained with no wound dehiscence and patient complaint. Irradiated polyglactin 910 suture had less tissue reactions and better healing as compare to Black silk suture especially on day 7 and 14 and the results were statistically significant. Hence Irradiated polyglactin 910 suture was a good alternative for use in minor oral surgical procedures.

Key words : Non absorbable suture, Black silk suture, absorbable suture, Irradiated polyglactin 910 suture, Vicryl rapide.