



Evidence Based Practice Paper

Sample

Choice of surgical materials when sewing in the oral cavity – Clinical study

Depending on the localization, specificity and condition of the lining tissue, the type and thickness of the surgical suture material is chosen. Sewing material acts as a foreign body after implantation, causing the local tissue reaction. This is particularly pronounced in suturing in the mouth cavity, where there are specific conditions of the environment, such as constant humidity and a large number of microorganisms (Dorfman et al., 1994; Lily, 1968). The world's leading manufacturers of surgical sutures today offer a great deal of sewing materials with a wide range of physical and chemical characteristics. Due to the variety of offers, modern surgeons, besides professional medical knowledge, must also possess adequate information on the origin, purpose and characteristics of surgical suture materials. Stitches, with an emphasis on biological properties as each manufacturer defines them very concisely and without emphasizing the difference in behaviour in implantation into different human tissues (Okamoto et al., 1990; Quesada et al., 1995). From an oral-surgical point of view, there are a number of extremely important clinical parameters that affect the choice of surgical suture material: accumulation of soft deposits on the suture material; decubitus surrounding soft tissues; dehiscence of the wounds.

The study is a prospective clinical study conducted in 150 patients of both sexes, aged between 25 and 60 years. Patients are divided into three groups of 50 people. The average age of patients in the groups was 38 years, and both sexes were equally represented. The first group was controlled, and as a suture, Black Silc was used as a suture, while the other two were experimental and Nylon (the second group), i.e. Vycril (third group), was used as a suture material. The surgical procedure foresees that each patient performs resection (apicoectomy) of the root of the tooth root in the intercanal upper jaw section. The design of the flap was performed by a mucoperiosteal incision of the trapezoidal shape, the horizontal in the attachment gingiva and the two vertical relaxations of 45 degrees to the forearm. The blade number 15 was used for the recording on the holder number 3. The flap mobilization was carried out by the Freer's raspatorium, and the flap was screened with Farabef's escarader. Each patient was treated with a cortex of the maxilla of the intercanal sector with a 3 mm high speed rotating drill with a round steel borer, with an abundance of drill and working surface with a sterile saline solution. After finishing the operation on the dental-bone structures, the limb was returned to its place and sewn with five individual sutures. The sutures are placed on the flap edges, one on each relaxation and one on the horizontal portion of the incision. A classic sliding surgical node (2 + 1 + 1). The following sewing materials were used for sewing: 1) Black Silc, polyethylene material of natural origin, thickness 5-0, with a rounded needle, pointed tip, end-incorporated into the body of needles (atraumatic) 25 mm in length and curvature 3/8 circle "DR 25". 2) Nylon, monofilament material of artificial origin, 5-0 thickness, with a round-cut needle, pointed tip, end-incorporated into the body of needles (atraumatic) 25 mm long and 3/8 circle "DR 25" curvature. 3) Vycril, polyfilamentary resorptive suture material of artificial origin, 5-0 thickness, with round needle, pointed tip, end up incorporated into the body of needles (atraumatic) 25 mm long and 3/8 circle "DR 25" curvature. All patients were postoperatively advised to regularly maintain oral hygiene (brush and toothpaste) after each meal, avoiding the rinsing of the oral cavity with teas and various solutions. A mixed diet with equal concentration of soft and solid food was suggested. In the second part of the study, patients were scheduled for the second, fifth and seventh postoperative days, when the

influence of the applied sutures on healing of the wound was monitored. Ad sculpting was performed to determine the influence of the used welding materials.

The degree of accumulation of soft deposits during the postoperative period: Analyzing the parameter of accumulation of soft deposits on weft materials during the seven-day period of the ratios, his presence was registered in 63 patients on the second postoperative day, 69 cases of the fifth and 68 patients on the seventh postoperative day. Observing this parameter in relation to the type of welded material used, a gradual increase in the amount of deposits on individual threads was observed, as the number of postoperative days increased. In the first two groups in which polyfilament ends (Vicryl, Silk) were used, the amount of accumulated soft deposits increased significantly between the second and seventh postoperative days. This can be explained by the fact that the polyfilament ends with a plurality of intermediate spaces between the threaded threads and the rugged upper surface represent an ideal place for retention of food. Accumulated deposits mechanically, by their presence, as well as by chemical action (enzymes, toxins), can result in tissue damage and thus directly endanger the wound healing process. Observing the group in which Nylon was used as a suture material, the reverse occurs. On the second day, a greater amount of deposits was registered than on the seventh day. This can be explained by the fact that on the second day there is a greater postoperative oedema, the wound is still painful, the effect of physiological self-cleaning is reduced, and the patients themselves in this period do not maintain proper oral hygiene fearing not to hurt the area under operation. Reducing the amount of accumulated deposits in the later period, is associated with an increase in the degree of physiological self-cleaning, an abrasive food effect and improved hygiene. These factors lead to easier removal of deposits from the smooth, monofilament end and thus protect the wound from possible postoperative complications (Spotnitz, 1997; Harison, 1991).

The occurrence of dehiscence of the wound during the postoperative period: Observing the occurrence of dehiscence of wounds after implantation of seams into tissue, during the seven-day postoperative period, it was observed in nine patients on the second postoperative day, 26th fifth and 36 patients on the seventh postoperative day. The obtained results show that as the postoperative period flows, the incidence of dehiscence of the wound increases. Analyzing the mentioned parameter in relation to the type of welded material, dehiscence was observed to be more frequent in poly (vinyl, Silk) than in monolayer (Nylon). This can be explained by the fact that non-corrosive monofilament ends have the best traction properties through the tissue, leading to the least traumatization in the stomach canal, after implantation, short tissue-induced low-intensity reaction with rapid activation of reparatory and regenerative processes, and thus greatly reduces the occurrence of postoperative complications. Numerous authors in their research indicate the occurrence of a shorter, lower intensity of tissue reaction, occurring after the use of monofilament welding materials. In contrast, polyfilamented ends with no surface treated, such as Silk and Vicryl, tend to pass through the tissues and cause greater trauma in the stump channel. After implantation into the tissue, interstitials between the twisted threads retain the bacteria and accumulate tissue fluid, which leads to the appearance of prolonged tissue reactions of higher intensity (appearance of granules rich in giant cells), with subsequent activation of reparatory and regenerative processes. All this results in the occurrence of more frequent postoperative complications, with difficulty in healing of the operative wound (Castelli, 1978).

Appearance of soft tissue decubitus during the postoperative period: Analyzing the appearance of soft tissue decubitus during the seven-day postoperative period, his presence was observed in seven patients on the second postoperative day, on the 19th and seventh postoperative day in 22 patients. The results show that with the increase of postoperative days the incidence of changes in soft tissue is also observed. Considering the mentioned parameter in relation to the type of wound material used, it was noticed that in the control group, where Silk was used as a sewing material, the complete absence of damage to the surrounding soft tissues of the subjects. This is explained by the fact that fine silk threads embedded in polyphilamine Silk have extreme flexibility and elasticity, with the possibility of easy adjustment to the conditions in the oral cavity, which prevents the appearance of soft tissue decubitus. Vicryl and Nylon are the ends of less elasticity and flexibility compared to Silk, requiring multi-node binding (5-7 knots), the ends of the end are sharper, and consequently, damage to surrounding soft tissues is more likely.

Based on the analysis of the obtained results of the conducted research, one can conclude the following: Silk, which belongs to the group of natural polyfilament welds, after application into tissue, causes a pronounced accumulation of soft deposits (72% of subjects), reaching its maximum to the seventh postoperative day; Vicryl, belonging to a group of synthetic polyfilament weft materials, after application into tissue, causes increased accumulation of soft deposits, which occurs in about 50% of patients examined; Nylon, a synthetic monofilamentary sewing material, after application into tissue, causes a slight accumulation of soft deposits, which occurs in 10% of subjects; The dehiscence of the wound, after implantation of the surgical end into the tissue, is equally present in the groups with Silk and Nylon and occurs in about 20% of patients; In the Vicryl group, an increased incidence of dehiscence of an operative wound was observed, occurring in more than 30% of subjects; Silk, which of the three examined ends has the finest threads, does not cause the appearance of a decubitus of surrounding soft tissues; Vicryl, with its tissue-free parts, leads to increased decubile tissue damage seen in about 60% of patients.

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