

FIG. 2. Strength and elastic modulus of different monofilaments

Process	Young's Modulus [GPa]
1: Injection molding	4
2: Solid state extrusion KIST	8.4
3: Solid state extrusion SF & SG	14
4: Maxon monofilament	0.9
5: Author monofilament batch 3 & 4	6
6: Author monofilament batch 2	7

ples were clamped with fiber clamps with a grip distance of 100 mm. The load cell used had a range of 0.1 kN and an accuracy of 0.001 kN. The crosshead speed was 20 mm/min. The tests were carried out using three samples of each material and the average of the three values was used for further data-processing.

Results

Monofilaments with a tensile strength of >500 MPa and a Young's Modulus of >5500 MPa could be produced by hot-drawing of the melt-extruded material when drawn with a draw ratio of 8...10 and temperatures between 125 and 155°C. These conditions guarantee a continuous monofilament production. The strength of the monofilaments produced by the authors is more than twice of that reported in the literature (FIGURE 2).

Discussion

By hot-drawing, the fiber diameter was reduced by a factor of 2 to 2.5. To manufacture thin fibers, the initial fiber diameter needs therefore to be kept low. The limiting factors however are the processing parameters of the extruder, like nozzle diameter, pressure and temperatures. The strength of the monofilaments can further be increased if the thermo-oxidative degradation upon melt extrusion is diminished. The high-strength, high-modulus polylactide monofilaments can be transformed into high-strength internal fixation devices by solvent welding [8].

References

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EXPERIMENTAL MODEL FOR STUDYING EFFECTIVENESS OF TREATMENT AND PROPHYLAXIS PROCEDURES ON THE BEGINNING AND DEVELOPING OF PURULENT-INFLAMMATORY PROCESSES

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For many years the problem of purulent-septic complications stays one of actual as for clinics of cranio-maxillofacial surgery as well for other stomatological and surgical clinics. Nature of purulent complications evaluation has been changed within last years. Very often we meet hard forms of purulent infections when purulent process is located in some anatomic regions and have severe complications which cause danger for human life. That situation makes to elaborate new preventive, treatment and prophylaxis procedures, so there is necessity to do medico-biological examinations to appreciate effectiveness of some treatment procedures and to compare them.

Aim

of this research is to elaborate experimental models for studying effectiveness of treatment and prophylaxis procedures on the beginning and development of purulent-inflammatory process.

Materials and methods

Guinea pigs have been subjected into the experiment which has been performed on 21 animals of the same weight and age. Animals have been operated according to the same

schema: under the local anaesthesia Novocaine 0,25% - 5-7 ml, we have cut animals back hair on the area of 5,0 x 5,0 cm. The operation field was treated with an antiseptic (solution spirituous tincture of iodine). We have done two incisions of 3,5 cm. length of the parallel of vertebral spinal skin and subcutaneous fibrous tissue. The subcutaneous fibrous tissue was separated from the muscular fascia. The culture of variety field of St. aureus (in concentration 1:500 and 1:1000) was leaded into the wound. On the wound it was put postpone knot stitches with an atraumatic suture material (vicrilum - 5 - 0). The animals were assessed at 24, 48 hours, 3, 7, an 14 day, and followed up 3 and 6 months postoperatively.

Results

of experimental studies had demonstrated development of purulent-inflammatory process in 100% of cases.

Conclusions

All mentioned above gives to make conclusion that described method of making experimental model for studying effectiveness of treatment and prophylaxis procedures on the beginning and development of purulent-inflammatory process is simple to be reproduced, it does not demand a lot money. That is why it is to be recommended for large use in medico-biological investigations.



METHODS OF EXPERIMENTAL MODELS MAKING TO STUDY STIMULATION OF REGENERATION PROCESS OF MANDIBLE BONE TISSUE

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Traumatic fractures of mandible is one of actual problem in cranio-maxillofacial surgery. Increasing number of maxillofacial injures is involving rise of traumatic fractures of mandible last years, which is varying from 67,4% to 85% [...]. It is well known frequency of adult people dental anomaly makes from 33,6% to 63%. That fact bring grate interest of specialists to look for new and more effective methods of treatment and surgical procedures of mentioned above diseases. It requires making of new experimental models to study stimulation of regeneration presses of mandible bone tissue.

Aim of research

is to elaborate new experimental models for studying stimulation of regeneration processes of mandible bone tissue which meet the following requirements: 1) operation

procedures are to be done painless; 2) experimental animal is to be kept alive postoperatively with good function of dental activity.

Materials and methods

Experiment was performed on 24 dogs of the same weight and age. Operation has been done under intravenous anesthesia with Sol. Thiopentali-Natrium 10%, 40 - 45 mg per 1 kg of animal weight. Using of that anesthesia treatment has permitted to make operations on mandible within 1,5 - 2 hours without additional anesthesia. They have used approximately 15 ml of Sol. Thiopentali-Natrium 10% while one operation procedure. That method gives to avoid complications as during operation procedures as well after it.

Operations have been performed in aseptic conditions.

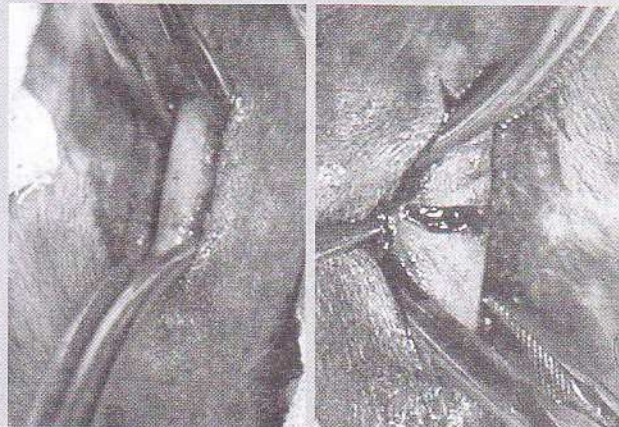


FIG. 1a) skeletalized part of the horizontal section of animal mandible.

FIG. 1b) osteotomic cut of the horizontal section of animal mandible.

Episodes of operation procedures are shown on the FIG. 1. Incision has been made parallel in 1 sm to the edge of mandible. Skeen was cut till the bone. After the periosteotomy and skeletalization of horizontal part of mandible made by SIEMENS stomatologic equipment, osteotomy has been performed under the angle of 80 - 90in the region of 5-6th teeth. Nerves and capillary have stayed undamaged as it is shown in the FIG.2. Teeth of osteotomical region have been extracted. After the operation the wound was cultivated with 5 ml of Sol. Lincomicini 30%. Layer by layer, they have put stitches in a wound by superamide. Stitches were cultivated by Sol. Iodi Spirituosae 5%. Than the same operation has been made on the opposite site of animal mandible. Postoperatively, all animals had antibacterial and anti-inflammatory treatment course of 7 days. Animals were treated by Sol. Lincomicini 30% - 1 ml, Sol. Analgini 50% - 2 ml. once per day intramuscularly.

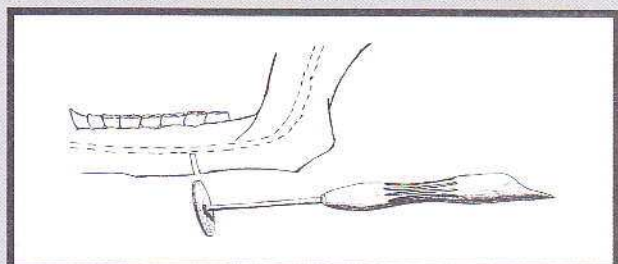


FIG. 2. Schema of osteotomical cut for experimental model of mandible trauma.

