Braided Marlex Suture

A New General Purpose Suture

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The low foreign-body reaction exhibited by Marlex [1] and Marlex mesh [4] suggested to us and to others,[2,3] its possible use as a suture. We found that the monofilament, while possessing excellent tensile strength, was lacking in knot retention. This was due to the slickness (self-lubrication) of the monofilament and somewhat to "plastic memory," a tendency of certain plastics to assume their original shapes following twisting or torsion.

We found that a twisted multifilament thread (70 fibers) lacked tensile strength. Various braids of the monofilament were then tried and we finally discovered that a 8-strand braid of 6 mil monofilament (the same size monofilament used in making knitted Marlex mesh) made an excellent suture.[4] By braiding the monofilament, sufficient roughness was imparted to it to provide good knot retention. The 8-strand braid of 6 mil Marlex monofilament has a knot pull breaking strength of 7 lb., which corresponds in strength to a U.S.P. size 2 suture.

The braided suture handles well and has the somewhat rigid feel and resiliency of catgut. Because of the roughness imparted to it by braiding, there is a tendency of the suture to saw with one-handed knot tying, but as the surgeon gains experience in using the suture this tendency is considerably lessened.

The braided Marlex was used to suture abdominal wounds in 18 dogs, 6 of which were infected at the time of operation. All wounds healed without the formation of suture sinuses, even when the material was used as a continuous suture. This tolerance of the suture of infection was expected since a mesh of the same size monofilament (6 mil) had previously been shown to be resistant to infection.[4] Inspection of the suture knots at autopsy showed that none had become untied, even though they were tied under tension.

We have used this suture in 150 patients for abdominal wound closure (all layers) and in 30 patients for suturing knitted Marlex mesh as a replacement for tissue defects. All wounds healed well, and there were no instances of wound dehiscence or draining suture sinuses, although several of the abdominal wounds developed postoperative infections.

We believe this material is the suture of choice for the implantation of knitted Marlex mesh in the repair of tissue defects, since it (like the mesh) does not potentiate infection.

Our limited clinical experience with the braided Marlex suture for abdominal wound closure has also been good. The healing of infected wounds (even when it was used as a continuous suture) indicates that it is of

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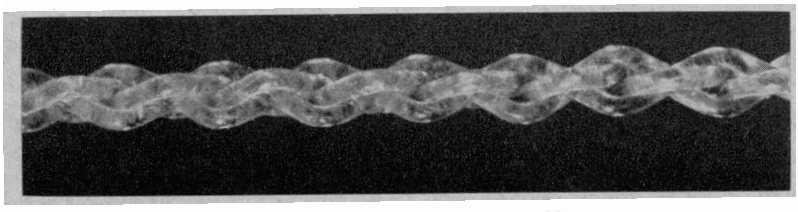

Fig. 1.—Braided Marlex suture. A 4-strand braid prepared from a 6 mil monofilament. Low power magnification.

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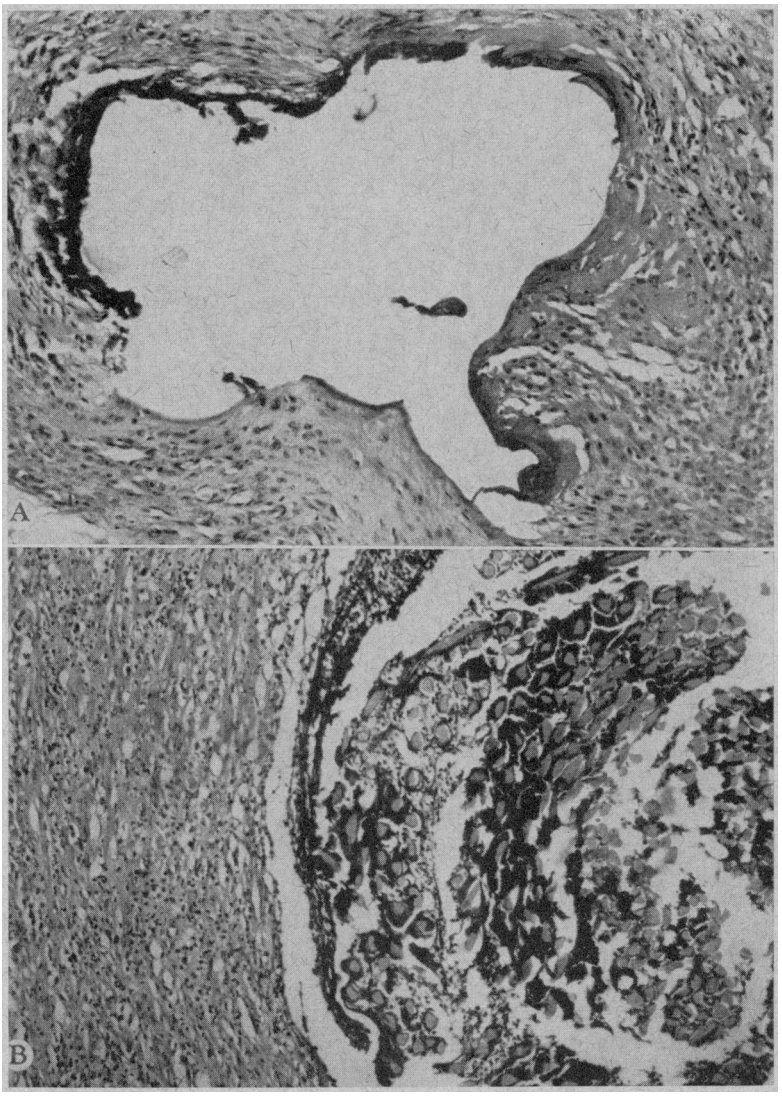

Fig. 2.—Photomicrograph showing tissue response (rectus muscle of the dog) at 12 months postoperatively. *A*, braided Marlex and *B*, black silk, size No. 00. Note minimal foreign body reaction incited by Marlex in comparison to that incited by silk.

particular value where contamination is present.

Because of this resistance to infection, we have also found this suture can be used advantageously as a hemostatic tie.

Summary

A braided Marlex suture has been described which we believe will prove to be of value as a general purpose suture. Additional sizes of the braided suture can be made by altering the size of the monofilament or the number of strands used in the braid.

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