Application of a biological adhesive for wound treatment - Comparison of suture closure, self-sealing and sutureless closure in the tensile strength test.

Authors: Shigemitsu T., Majima Y., Ishiguro K., Yumiyama A., Shimizu Y.

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Abstract:

In cataract surgery in white rabbit eyes, a corneoscleral incision 5 mm in length was made 2.5 mm from the limbus corneae, and entry into the anterior chamber was obtained 0.5 mm into the clear cornea. After treatment for closure, the corneoscleral piece was subjected to the tensile strength test. The tensile strengths just after surgery were (1) 0 gf/mm² after self- sealing sutureless closure; (2) 114 gf/mm² after vertical suture closure (one stitch with 10-0 nylon); (3) 125 gf/mm² after horizontal suture closure (one stitch with 10-0 nylon); (4) 143 gf/mm² after infinity suture closure (with 10-0 nylon); (5) 112 gf/mm² after biological adhesive (Beriplast P) application (instilled on surface of scleral incision); (6) 121 gf/mm² after Beriplast P application (glued on corneoscleral wound on); (7) 131 gf/mm² after cyanoacrylate closure (instilled on surface of scleral incision); and (8) 139 gf/mm² after cyanoacrylate closure (glued on corneoscleral wound). The respective strengths at 4 days after surgery were: (1) 86; (2) 131; (3) 137; (4) 175; (5) 109; (6) 43; (7) 138; and (8) 108 gf/mm². At 28 days after surgery, the respective strengths were: (1) 164; (2) 167; (3) 184; (4) 290; (5) 322; (6) 195; (7) 251; and (8) 175 gf/mm². The usefulness of the biological adhesive (fibrin glue: Beriplast P) as a treatment of wounds in ophthalmic surgery has been firmly established.