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Service (sector) Retina and Vitreous N° CEP

Experimental Endophthalmitis Following 25-gauge and 20-gauge Scleral Incisions

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Purpose: To evaluate clinical, microbiological and histopathological aspects correlated with endophthalmitis of different pars plana vitrectomy incisions after a massive *Staphylococcus* coagulase negative eye exposure.

Material and Methods: Thirty rabbits divided into three groups of 10 rabbits (20-gauge scleral incision followed by suture (A), 25-gauge transconjunctival without conjunctival dissociation (B), and 25-gauge transconjunctival with conjunctival dissociation (C)) were studied. At the end of the scleral procedures, all eyes were exposed to *Staphylococcus epidermidis*. The eyes were clinically evaluated regarding the inflammation level. A microbiological study was performed by direct bacterioscopy as well as culture. The samples were analyzed by light microscopy.

Results: After the third day, two out of the 10 eyes (20%) in group B (25-gauge without conjunctival dissociation group) had high inflammation suggestive of endophthalmitis. On the fifth day, these animals were sacrificed and eyes/vitreous were analysed. There was a severe infiltration with polymorphonuclear leukocytes (PMN) proliferation at the incision site and the vitreous cavity showed a mild degree of PMN infiltration with accumulation of proteinaceous material and fibrin. No histopathological alteration was seen in the other animals. No bacteria growth was observed in the animals vitreous puncture culture.

Conclusions: This data demonstrates the value of the conjunctival displacement during 25-gauge vitrectomy in order to avoid or minimize the potential risks of endophthalmitis following this novel surgical technique. These results also emphasize that care must be taken during patient selection for 25-gauge pars plana vitrectomy.