

(S1)

# Operacje nieprzebijające w jaskrze otwartego kąta: nasze doświadczenia i obserwacje

## Non-penetrating surgery of open-angle glaucoma: our experience and prospective studies

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There have been performed over 50 thousand procedures of non-penetrating deep sclerectomy (NPDS) at the Fyodorov Eye Clinic. This experience allows to precisely determine indications and contra-indications to NPDS. The analysis of the achieved results showed that an eyes' tonus normalization after NPDS was obtained in 92% of cases. The risk of complications minimize: choroid detachment – 2% of cases, hyphema – 0.6%, cataractogenic effect was practically absent, there were no infectious complications.

There have been determined following main causes of NPDS inefficacy:

1. Absence of indications to the operation;
2. Violation of the surgical technology
3. Intraoperative complications
4. Excessive scarring at the operation area.

So that, to prolong a hypotensive effect of NPDS we developed and improved new types of drains. There were drain devices made of collagen and its copolymers of various configuration.

There were studied a possibility of cytostatics application. In patients with a high risk of cicatrization (proliferation) at the area of antiglaucomatous procedure mitomycin-C was successfully applied. There were no complications associated with the use of cytostatic medicine.

In case of insufficient hypotensive effect of NPDS when a „purpose pressure” was not achieved and also in case of an elevated IOP in long-term postoperative follow-up a method of laser descemetogoniopuncture at the NPDS area was widely introduced.

A new technology of excimer laser was developed for NPDS. The ablation of the external wall of the Schlemm's canal and corneal tissue up to the Descemet's membrane was performed by means of excimer laser. Intraoperatively there were no perforations of trabeculae and Descemet's membrane. A hypotensive effect makes up over 90%.

Bypass operations (superficial temporal artery transection) were successfully carried out to intensify the blood supply of the eye, especially, in a pronounced glaucomatous atrophy of optic nerve. As a result a redistribution of the regional blood flow took place, as well as an increase of hemoregulation in the ophthalmic artery. Our investigations showed that after NPDS in combination with bypass operations, the blood flow velocity in the ophthalmic artery rises by 30% on an average.

Thus, non-penetrating technology is a dynamically developing and most prospective trend in the surgery of open-angle glaucoma.