Outcomes of primary tube shunt surgery versus trabeculectomy with mitomycin C
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Purpose: To compare the clinical outcomes of tube shunt surgery versus trabeculectomy with mitomycin-C (MMC) in patients who have not had prior intraocular surgery.

Methods: A comparative case series of patients with uncontrolled intraocular pressure (IOP) and no history of prior intraocular surgery was retrospectively analyzed. Based on date of surgery, age, and diagnosis, 61 patients who had undergone placement of a Baerveldt glaucoma drainage implant (BGI) were matched to 58 patients who had undergone trabeculectomy with MMC. The main outcome measures were visual acuity, change in IOP, and number of required glaucoma medications. Failure was defined as an IOP, with or without medications, at two consecutive follow up visits (conducted at least one month apart) of less than 5 mmHg or greater than 17 mmHg or a less than 20% reduction in IOP if the pre-operative IOP was 18 mm Hg or less. Patients were also classified as having failed if they lost light perception or required additional glaucoma surgery.

Results: A total of 119 eyes of 119 patients were included in the study: 61 in the tube group and 58 in the trabeculectomy group. Mean follow up was 32.3 ± 21.4 months. The mean age of the study population was 64.3 ± 14.3 years with 62% of the patients being male. The study group was composed of 23% Caucasian, 43% African American, 32% Hispanic and 2% other patients. Primary open angle glaucoma was the most common diagnosis representing 74% of cases while chronic angle closure represented 10%. The average visual field loss at baseline was -18.3 ± 11.6 dB. The baseline IOP in the tube group was 25.4 ± 10.4 mmHg on 3.4 ± 1.1 medications, while the baseline IOP in the trabeculectomy group was 22.4 ± 7.8 mmHg on 3.1 ± 1.3 medications (p > 0.05). Ten patients in both groups were considered failures. Kaplan-Meier analysis did not demonstrate any differences in success between groups. At 2 years, the mean IOP was 12.9 ± 3.0 mmHg in the tube group and 11.9 ± 4.5 mmHg in the trabeculectomy group (p = 0.5). The number of glaucoma medications was 2.5 ± 1.5 in the tube group and 1.0 ± 1.5 in the trabeculectomy group (p = 0.0005). Successful post-operative IOP control was achieved in 78% of patients in both groups. One patient in the tube group and three patients in the trabeculectomy group required reoperations for glaucoma. Postoperative complications in the tube group included persistent diplopia in 4 patients and choroidal effusions in 4 patients with one requiring surgical drainage. There was one case of endophthalmitis and one case of blebitis in the trabeculectomy group while there were no postoperative infections in the tube group.

Conclusions: When performed as primary incisional surgery, tube shunt surgery and trabeculectomy with MMC demonstrated equal success in controlling intraocular pressure. Although final IOPs were equal between the groups, patients with tube shunts required more glaucoma medications to maintain satisfactory pressures.