

# Animal experiments and clinical applications of a dye laser ophthalmic treatment apparatus

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Most lasers used in clinical ophthalmology nowadays are solid lasers and gas lasers. We began to use a liquid dye laser in treatment of eye diseases in 1978, so far 51 cases (54 eyes) have been treated, including peripheral retinal breaks, closed-angle glaucoma, incomplete surgical iridotomy, vitreous hemorrhage, periphlebitis retinae, Coats' disease etc and most of the results are satisfactory.

The dye laser has some advantages in iridotomy because its pulse duration is quite short, and power density is high. Only 30 mj would produce a complete iridotomy with one single pulse. The anterior chamber reaction is not obvious. So the dye laser is much better than the ruby or argon laser in iridotomy.

If the energy is controlled adequately, bleeding is scanty in using a dye laser to photocoagulate the retina.

The therapeutic effect of a dye laser for vitreous hemorrhage is better than an argon laser's of ten cases treated, seven improved to various degrees, three failed due to the organization of the vitreous bodies.

The tunability over a certain range is one of the distinctive characteristics of the dye laser which can not only be used in ophthalmologic clinic, but also in ophthalmic basic research to study the biological effects of a laser on eye structures.

## 染料激光眼科治疗机的动物实验和临床应用

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目前应用于眼科临床的激光,主要是固体激光和气体激光。我们自 1978 年开始用液体染料激光治疗视网膜周边部裂孔、闭角型青光眼、虹膜不完全切除、玻璃体积血、视网膜静脉周围炎、Coats 氏病等 51 个病例(54 眼),取得较为满意的结果。

染料激光在虹膜切除上,由于其脉冲时间短,功率密度高,表现有一定的优越性。仅 30 毫焦耳一次脉冲可使全层虹膜切除,且前房反应轻,所以染料激光对虹膜切除是明显优于红宝石激光和氩激光的。

染料激光凝固视网膜,只要能量控制得当,并不十分容易出血。

染料激光对玻璃体积血的疗效较氩激光为理想。治疗 10 个病例,其中 7 例有不同程度的进步,而失败的 3 例是因玻璃体已有机化。

在一定范围内波长连续可调是染料激光的最注目特点,这个重要特点不但可为眼科临床服务,还可为眼科基础研究服务。