

Pulsed laser induced liquid jet

The pulsed laser-induced liquid jet (LILJ) system is an emerging surgical [instrument](#) intended to assist both maximal removal of the lesion and functional maintenance through preservation of fine vessels and minimal damage to the surrounding tissue. The system ejects the minimum required amount of pulsed water through a handy bayonet-shaped catheter.

Nakagawa et al. already shown a significant increase in removal rate, in addition to a noteworthy reduction of intraoperative blood loss and procedure time in the treatment of large pituitary and skull base tumors in a single-institution series. The present study evaluated the safety of the system in multiple institutions.

The study included 46 patients, 29 men and 17 women (mean age: 59.1 years) who underwent microsurgical/endoscopic resection of lesions in or in the vicinity of the pituitary fossa through the transsphenoidal approach between October 2011 and June 2012 at six institutions. The histologic diagnoses were pituitary adenoma (31 cases), meningioma (4), craniopharyngioma (3), cavernous angioma (2), and Rathke cyst cleft (1). Lesion volume ranged from 2.0 to 30.4 cm³ (mean: 3.7 cm³). Cavernous sinus invasion was observed in 11 cases and suprasellar extension in 29 cases.

Preservation of intralesional arteries (diameter: 150 µm) was achieved in all situations in > 80% of cases. Intended surgical steps were achieved except for some restrictions in motion due to the use of an optical quartz fiber. No complications occurred directly related to the use of the device.

The LILJ system can be used for safe removal of lesions in or in the vicinity of the [pituitary fossa](#) ¹⁾.

¹⁾

Nakagawa A, Ogawa Y, Amano K, Ishii Y, Tahara S, Horiguchi K, Kawamata T, Yano S, Arafune T, Washio T, Kuratsu JI, Saeki N, Okada Y, Teramoto A, Tominaga T. Pulsed Laser-induced Liquid Jet System for Treatment of Sellar and Parasellar Tumors: Safety Evaluation. J Neurol Surg A Cent Eur Neurosurg. 2015 Jan 16. [Epub ahead of print] PubMed PMID: 25594817.

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Last update: **2024/06/07 02:54**

