Concern and Usefulness of Intratumoral Injection of Ethyl Alcohol for Devascularization of Intracranial Tumors

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The mechanism of action of intratumoral ethyl alcohol injection is dehydration and subsequent necrosis, denaturing the structure of the cellular proteins, resulting in complete ablation of the tumor. Pure alcohol also blocks blood flow to the tumor bed resulting in small blood vessel thrombosis that leads to tumor necrosis. Ethyl alcohol injection is also used for the treatment of liver and kidney tumors and vascular malformations (1).

The use of ethyl alcohol in neurosurgical cases is not new. In 1991, Xie et al. reported use of ultrasonography-guided percutaneous alcohol injection in cases suffering with recurrent intracerebral supratentorial gliomas (4). In 1998, Lonser et al. reported tumor devascularization by intratumoral ethanol injection during surgery in 3 spinal epidural metastases and one large cerebellar neoplasm (hemangioblastoma). They observed immediate blanching, devascularization and enhanced visualization. Incremental tumor devascularization was achieved by careful injection of small amounts of ethyl alcohol directly into the lesion, producing immediate and complete regional tumor devascularization (2).

However, there are many concerns on this technique. Firstly, an experienced anaesthetic team with facility of hemodynamic monitoring is required in order to help the patient for early detection and management of cardiovascular instability developing during the intratumoral alcohol injection. Second, a cost-benefit analysis has never been carried out regarding intratumoral ethyl alcohol injection. Nevertheless, the current technique is really a major advancement in field of controlling excessive bleeding during surgery, and using ethyl alcohol injection with meticulously followed precautions will be helpful in saving not only lives but also ensuring a good neurological outcome.
REFERENCES


