

## Oncology of the chest

### **Intratumoral concurrent punctual freezing and dye injection during surgical resection of primary and secondary lung tumor: a new targeted delivery technique. Preliminary Report on 30 patients.**

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Cryosurgery alone or combined with surgery, and/or chemo-immunotherapy is in use on lung tumors. This clinical prospective observational study aims at assessing the safety and efficacy of a new technique combining the simultaneous intratumoral (IT) marginal focal freezing-and-bolus injection of a drug tracer, methylene blue 1% (MB).

30 patients, therapy naive, 52 to 87 years old, were operated over a 10 month period. 28 resectable primary non-small cell lung tumors and 2 metastases were treated. The procedure consisted of freeze-injection and resection of the tumor-lung tissue according to standard practice. The MB, 1.3ml, was injected along a small growing ice ball  $\leq 3\text{cm}^3$ . We evaluated the MB distribution localization, pattern and extent (coverage) on 16 tumors *in vivo*. The stained areas at gross examination were compared to that observed with the same procedure conducted on 12 freshly resected samples *ex vivo*. A marginal coverage  $> 50\%$  was deemed efficient.

Two tumors weren't stained. The MB inner margin localization rate was 75% *ex vivo* vs. 50% *in vivo*. The outer margin staining rate was 75% for both procedures and was contained except in 2 cases. A coverage  $>50\%$  was 56% *in vivo* vs. 33% *ex vivo*. The cryolesion site took the stain *in vivo*. The coloration pattern was not related to the tumor type, size or MB dosing. There was a moderate MB reflux for 6 cases, and no adverse related events.

Our technique facilitates the marginal distribution of the MB. A vascular exclusion prior to injection may enhance this targeted drug delivery method.