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Transdermal tissue acquisition for personalized medicine

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Histological and molecular examinations are prerequisite to understand cancer, determine individualized care, and identify targets for novel therapies. Recent studies in lung point to the difficult tissue acquisition with traditional biopsy instruments that limit application of personalized medicine. We studied macrobiopsy procedures in search for optimal tissue acquisition in various organs regarding efficacy in molecular biology diagnostics, comfort, and safety. All 1200 patients were given informed consent. Follow-up was minimally 1 year and on the average 5 years. Only when pathological and molecular data were considered comparable to diagnostic surgery or in line with follow-up, and with sufficient patient comfort, the procedure was defined as successful. In less than 2% of the procedures, the tissue was considered non-contributive. The head & neck region was the most difficult area because of poor visualization of the target lesion. Sample sizes were between 100 and 300 mg, compared to maximal 20 mg with tru-cuts. Patients comfort was excellent as less than 5% of the patients experienced side-effects. Pneumothorax for lung applications was less than 10%. 53 cases had diagnosis in cases where surgery was not possible. Improvement of tissue acquisition in the diagnostic work-up by the interventionist drastically affects quality of personalized care. Next generation tools, such as the Spirotome, gradually replace tru-cut systems in providing appropriate tissue volumes from different organs, making molecular biology at reach for every cancer patient in different stages of the disease.

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