

Meeting abstract

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## Ductoscopy technique – using ductoscopy anatomically direct breast conservation surgery

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Ductoscopy began as a way to identify the primary lesion in pathologic nipple discharge. The technology evolved to allow fairly easy access and adequate visualization for this task in a number of centers worldwide. The next step would have been to excise or substantially biopsy the lesions through the scope or with scope localization and not require open surgical biopsy. Cytologic samples could be obtained adequately but the size and diagnostic capability of the tiny histologic samples was rapidly found to be at about the limits of our technical ability. As a second observation, it was found that in small breast cancers, the duct containing the tumor could often be identified by expressible fluid and ductoscopy could be used to aid in complete removal of associated intra-luminal proliferative lesions. Some of these lesions, in the same ductal tree, seem to account for multi-focality. In a large series at Johns Hopkins and University of Oklahoma, I was able to show dramatic reductions in hazard rate for local failure with a 9 fold fall in local failure when the lumpectomy had been guided by ductoscopy. Many of the lesions identified and excised along with the cancers were proliferative but would not have normally been completely excised following histologic criteria for adequate lumpectomy. Ductoscopy segregated breast cancers into two groups: 1. Those with extensive associated proliferative disease requiring large segmentectomy to remove all intra-luminal disease, and 2. Those with minimal associated proliferative disease requiring minimal volume resection. For this last group, we have investigated minimal access excision devices as an alternative approach to their excision with early success which will be shown. Current scopes

allow for mapping of the layout of the breast ducts but still fail in abilities to navigated tight turns and get direct view multiple and adequate histologic biopsy. Pilot engineering approaches to address these issues and develop a more useful imaging scope with better biopsy and working channel capabilities will be compared and discussed.