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# VACUUM-ASSISTED EXCISION (VAE): A POTENTIALLY APPROACH FOR PERCUTANEOUS TREATMENT OF SMALL BREAST TUMORS

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**Objective:** The aim of this study was to evaluate vacuum-assisted excision (VAE) for percutaneous treatment of breast cancers. **Methods:** This is a retrospective analysis of 1061 vacuum-assisted biopsies (VAB) and VAE for the diagnostic purpose of suspicious breast lesions in a breast unit between April 13, 2017 and November 28, 2020. In total, 116 cases with complete data from VAB/VAE and surgical excision were evaluated. Excision following VAB/VAE was defined as complete resection (CR) if there was no residual tumor, minimal residual disease (MRD) if residual tumor was  $\leq 3$  mm, gross residual disease (GRD) if residual tumor was  $\geq 3$  mm, and upgrade from DCIS on VAB/VAE to invasive cancer. CR and MRD were combined as potentially resected and treated percutaneously (PRTP). The GRD and those with an upgrade to invasion were determined not suitable for percutaneous treatment. **Results:** The median age was 55.6 years (20–91; SD 12.27), and the median tumor size on imaging was 11.6 mm (4–88; SD 10.59). Of the 116 tumors, 29 (25%) were CR, 18 (15.5%) were MRD, 64 (55.2%) were GRD, and 5 (4.3%) were upgraded from DCIS to invasion. There were 47 (40.5%) tumors that were PRTP, of which 10 (21.3%) were DCIS and 37 (78.7%) were invasive diseases (12 pure invasive carcinoma [IC], 24 IC + DCIS, and 1 DCIS with microinvasion). In multivariate analysis, a VAE procedure ( $p=0.008$ , odds ratio [OR]: 4.4, 95%CI) with low/intermediate nuclear grade ( $p=0.000$ , OR: 12.5, 95%CI) and final  $T \leq 10$  mm ( $p=0.000$ , OR: 50.1, 95%CI) were associated with PRTP. In this retrospective analysis, the probability of PRTP of low/intermediate grade tumors smaller than 10 mm undergoing VAE was 84.58%. **Conclusion:** These data suggest that low/intermediate grade pT1a/b breast tumors can be completely excised with percutaneous VAE. Based on this, small ( $\leq 10$  mm) IC of low/intermediate grade could be considered for entry to prospective randomized trials of VAE for local treatment, with a long-term follow-up to assess recurrence rates. Standardization of the procedure should be recommended.

**Keywords:** Breast cancer. Percutaneous.