

Do Contoured LEEP Electrodes Improve the Quality of Specimens?: A Quality Improvement Project
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Background: Loop Electrosurgical Excision Procedure (LEEP) is an in-office therapeutic procedure to treat high grade cervical dysplasia by excising the transitional zone of the cervix. The quality of the pathology and margin status determine further need for treatment, including a repeat LEEP or cold knife conization. There are two main shapes of electrodes use: wide radius and contoured electrodes. If the specimen is fragmented or has unclear margin status, recommendation may be made for a repeat procedure to excise more cervical tissue.

Objective: To evaluate the quality of cervical excisions when using contoured versus large radius electrodes in resident LEEP clinics. More specifically, to assess if there are higher rates of re-excision with a certain type of electrode, and if there are higher rates of positive or unclear margins with a certain type of electrode.

Methods: *Participants:* Patients undergoing LEEP procedure in Medical Plaza “Resident Procedure Clinic” between 3/2/2021 to 2/14/2023 using CPT code 57460, 57461, 57520 and 57522. *Measures:* Indication for LEEP, including prior cytology or colposcopy pathology. LEEP specimen pathology, endocervical and ectocervical margin status, unclear margins or fragmented specimens, recommendation for re-excision or follow up colposcopy in LEEP check note. Chi Square analysis was used to evaluate significance.

Results: 131 procedures with 70 using wide radius electrodes (53.4%), 61 using contoured electrodes (46.6%). A Top Hat procedure was performed in 65.3% (n=45) of the wide radius group and 0 in the contoured group ($p < 0.0001$). The wide radius group had 31.4% (n=22) of specimens with positive endocervical margins, compared to 13.1% (n=8) in the contoured group ($p = 0.0151$). Ectocervical margin status had a $p = 0.2467$. 32.9% (n=23) of wide radius specimens were fragmented, compared to 11.5% (n=7) of the contoured group ($p = 0.0037$). Re-excision was recommended in 19.7% (n=12) of the wide radius patients, compared to 17.1% (n=12) of the contoured patients ($p = 0.7089$).

Conclusion: This study found that there were fewer positive endocervical margins with specimens using a contoured electrode. Additionally, there were fewer fragmented specimens. There was no statistical significance between the need for re-excision in the group. The contoured electrode eliminates the need for a top hat procedure, which is a procedure that is no longer part of the standard of care. Future directions include stratified data analysis for age-specific trends in need for re-excision, as well as implementation at our faculty clinic.