

**Poster #10****Outcomes of robotic-assisted versus abdominal radical hysterectomy for early stage cervical cancer**

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**Objectives:** A recent trial demonstrated that minimally invasive radical hysterectomy for early stage cervical cancer was associated with poorer oncologic outcomes when compared to open abdominal radical hysterectomy. However, in this study almost 85% of patients randomized to the MIS approach underwent laparoscopy while only 15.6% had robotic-assisted surgery. We sought to determine if outcomes after robot-assisted radical hysterectomy were comparable to those after open radical hysterectomy.

**Methods:** This was a retrospective review of patients with stage IA1 with lymphovascular space invasion, IA2, or IB1 cervical cancer with a histologic subtype of squamous cell carcinoma, adenocarcinoma or adenosquamous carcinoma undergoing open or robotic-assisted radical hysterectomy at a single institution from 2010 to 2017. Categorical data were compared with Chi-square and Fisher's exact test while continuous variables were analyzed using independent t-tests. Overall survival (OS) and progression free survival (PFS) were evaluated by the Kaplan-Meier method and log-rank tests.

**Results:** A total of 177 patients were included in the analysis with 76 patients undergoing open surgery and 101 patients undergoing robotic-assisted surgery. Overall, the mean age of the patients was 44.8 years old. Most patients (88.7%) had stage IB1 disease. There were no differences between the cohorts in clinical stage, histologic subtypes, depth of invasion, grade, lymphovascular space invasion, presence of positive margins or the presence of pelvic lymph node involvement. There was a higher rate of intraoperative complications in the open surgery group ( $p < .0001$ ) primarily due to hemorrhage  $> 500$  cc. However, there were no difference in immediate or delayed post-operative complications. Receipt of adjuvant therapy was also similar between the cohorts.

There was no significant difference in recurrence rates between the cohorts ( $p = .091$ ) with an odds ratio of recurrence of 2.974 [95% CI, 0.800-11.060] or odds ratio of death (0.740 [95% CI, .206-2.652]). There was a trend towards a decreased PFS in the robotic-approach through statistical significance was not achieved ( $p = .070$ ; Figure A). Median PFS was not met. There were no differences in DSS or OS between the cohorts (Figures B and C) and again median survival was not met for either cohort. A majority of patients in both cohorts received no adjuvant therapy (58% in both cohorts). The most commonly utilized adjuvant therapy was chemoradiation (28% in both groups).

**Conclusions:** In the cohort, there were no significant differences in oncologic outcomes in robotic-assisted versus open radical hysterectomy for treatment of early-stage cervical cancer. This suggests that the robotic approach is a valid surgical option in appropriate patients. We look to further validate our findings in a large, multi-institutional retrospective cohort.

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**Poster #11****Examining the utility of magnetic resonance imaging compared with physical exam in cervical cancer staging**

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**Objectives:** In an age of increasing scrutiny over the utilization of healthcare resources, it is imperative to judiciously select diagnostic modalities. Our practice setting includes a diverse, multi-racial population at a safety net hospital (SNH) and a university-based cancer center (CC). Our objective was to determine if use of pelvic magnetic resonance imaging (MRI) versus exam under anesthesia (EUA) as primary staging modality was associated with recurrence risk and recurrence free survival (RFS).

**Methods:** An institutional database of cervical cancer patients treated within either the SNH or CC from December 2012 to September 2017 were included. Demographic data were analyzed using Chi-squared or Fisher's exact test. Logistic regression was used to determine associations between clinical variables and recurrence. Cox proportional hazards models were used to determine associations with clinical variables and RFS. IRB approval was obtained and  $p < 0.05$  was considered statistically significant.

**Results:** The cohort included 102 patients; 62 patients treated at the SNH and 40 patients at the CC. The population was 96.8% and 82.5% non-white at the SNH and the CC, respectively, with over half of the population at each hospital being Hispanic. 88.7% of SNH and 100% of CC patients were advanced stage (nonsurgical) at diagnosis. Only 16.6% of SNH patients underwent pelvic MRI compared with 70% of CC patients ( $p < 0.001$ ). EUA was performed in 51.6% of SNH patients and in 20% of CC patients ( $p = 0.001$ ). 14 (23%) patients recurred at the SNH compared with 11 (28%) at the CC ( $p = 0.57$ ). Recurrence was not associated with EUA (OR 2.00,  $p = 0.14$ ) or MRI (OR 0.74  $p = 0.53$ ). Advanced stage (III or IV) at diagnosis was the only variable associated with RFS (HR 3.02,  $p = 0.02$ ). Use of pelvic MRI (HR 1.14,  $p = 0.76$ ) and EUA (HR 0.78,  $p = 0.55$ ) had no association with RFS.

**Conclusions:** In our population, the modality used to complete a patient's primary evaluation was not associated with recurrence risk or RFS. Our results suggest that treatment delays may be avoidable by forgoing pelvic MRI at diagnosis without adversely affecting outcomes.

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**Poster #12****Pathologic upstaging due to tumor size is associated with worse oncologic outcomes in patients with stage 1B1 cervical cancer**

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**Objectives:** Clinical and pathologic staging of cervical cancer are discrepant in approximately 30% of patients with IBI cervical cancer. We aim to estimate the rate of discordance between clinical and pathologic tumor size and to determine the impact on oncologic outcomes.

**Methods:** This is a retrospective review of patients with stage IBI cervical cancer undergoing radical hysterectomy between 2010-2017 at a large academic institution. Demographic, clinical characteristics, pathologic findings and oncologic outcomes were extracted from the medical record. Patients with incomplete data were excluded. The primary outcome was the rate of pathologic upstaging with respect to tumor size (clinical exam  $< 4$ cm, pathologic tumor size  $> 4$ cm). Secondary outcomes included rate of recurrence, progression free survival, and overall survival.

**Results:** 128 patients were included. 36 patients (28.1%) had a pathologic tumor size  $\geq 50\%$  larger than what was noted on clinical exam. Pathologic upstaging was seen 22.7% ( $n = 29$ ) of patients. Upstaged patients were more likely to have adenosquamous

histology (13.8% vs 2.1%), poorly differentiated tumors (37.9% vs. 19.2%), presence of LVSI (55.2% vs. 44.9%) and positive pelvic lymph nodes (27.6% vs 11.1%) than patients with tumors < 4 cm on final pathology. Upstaged patients were more likely to have preoperative imaging (51.7% vs. 30.3%) with over 85% of imaging being performed with CT or PET/CT.

Factors associated with pathologic upstaging included adenosquamous histology ( $p=.029$ ), use of preoperative imaging ( $p=.034$ ), moderately or poorly differentiated tumors ( $p=.035$ ), positive pelvic lymph nodes ( $p=.028$ ), and receipt of adjuvant therapy ( $p<.0001$ ). Recurrence rates were higher in upstaged patients (20.7% vs. 6.1%,  $p=.017$ ). Median PFS was shorter in upstaged patients than those with pathologically confirmed IB1 disease (84.3 m v 97.7 m,  $p=.019$ ). There was a trend towards poorer OS in upstaged patients ( $p=.082$ )

**Conclusions:** Accurate evaluation of tumor size on clinical exam is challenging in patients with stage IB1 cervical cancer. Pathological tumor sizes > 4 cm are associated with poor prognostic features and worse outcomes compared to patients with pathologically confirmed IB1 cervical cancer. Further research on how to improve clinical staging should be undertaken.

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#### Poster #13

##### Postpartum colposcopy – Is it necessary?

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**Objectives:** We aimed to determine regression or progression of dysplasia after delivery in regards to necessity of postpartum colposcopy in patients at high risk of non-compliance with follow up.

**Methods:** This is a retrospective cohort study of pregnant patients with abnormal pap smears from 2009 through 2016. Data collected included demographics, cervical cytology, colposcopy impressions/pathology. Pap smears of HPV+, ASCUS HR HPV-, ASCUS HR HPV+ or LSIL were coded as low grade. ASC-H or HSIL were coded as high grade. Data were analyzed via chi square and logistic regression with significance determined at  $P<0.05$ . Power was calculated post-hoc.

**Results:** Power was calculated post-hoc and was found to be 88%. In this population, the no show rate to postpartum colposcopy appointment was 55.7%. 31.5% of patients did not have follow up cytology any time since delivery to present. Analysis revealed, for patients with follow up cytology available and low-grade antepartum pap smear, postpartum pap smears were negative, low grade and high grade at rates of 57.9%, 33.3% and 8.8% respectively. When dividing this group by shows and no shows to postpartum colposcopy, there was no statistically significant difference between follow up cytology ( $p = 0.11$ ). For the same population, high grade antepartum pap smears were negative, low grade and high grade at rates of 28.9%, 25.7% and 45.7% respectively.

With respect to antepartum colposcopy compared to postpartum colposcopy, there was no significant difference between antepartum colposcopy impression and postpartum colposcopy pathology ( $p=0.54$ ) (figure 1).

**Conclusions:** Low grade pap smears in pregnancy have low risk of progression and it may be reasonable to consider repeat pap in the postpartum period rather than repeat colposcopy. There was no statistically significant difference between next pap smears whether patients did or did not comply with their postpartum colposcopy,

implying colposcopy may be an unnecessary intervention in this specific population. Further study is indicated to test this hypothesis.

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#### Poster #14

##### Risk of cervical and vaginal neoplasia after surgery for vulvar intraepithelial neoplasia or cancer: A 6-Year follow-up study

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**Objectives:** Current guidelines to continue cytology screening after hysterectomy are based on history of high-grade intraepithelial neoplasia of the cervix (CIN), but not of the vulva (VIN). Here, we aim to evaluate the utility of cytology among women, with and without prior hysterectomy, who underwent surgical management for VIN3+ disease by estimating the risk of high-grade cervical or vaginal intraepithelial neoplasia or cancer (CIN2+/VAIN2+) diagnosed during vulvar surveillance follow-up.

**Methods:** Women who underwent surgery for high-grade VIN or vulvar cancer between 2006 and 2014 were identified retrospectively. Patients who underwent prior hysterectomy for any indication were included. Univariate and multivariate logistic regression analyses were used to identify clinical factors of abnormal cytology after surgical treatment for VIN and vulvar cancer.

**Results:** During our 8-year study period, 302 women were followed with surveillance exams after vulvar surgery over a median follow-up of 72 months. During that time, 100 (33%) women had abnormal cytology: 69 (23%) low-grade, 28 (9%) high-grade, and 2 (0.7%) carcinoma. Overall, 33% of women had a prior hysterectomy, but the risk of intraepithelial neoplasia or cancer was not significantly different from women with an intact cervix [9/99 (9%) VAIN2+ risk vs. 15/203 (7%) CIN2+ risk]. Correlates of high-grade cytology following treatment for VIN/vulvar cancer included non-white race [odds ratio (OR) 4.6, 95% confidence interval (CI) 2.4-8.8], immunodeficiency (patients with human immunodeficiency virus or on immunosuppressive medications) (OR 4.0, 95% CI 1.8-8.8), and prior abnormal cytology (OR 4.4, 95% CI 2.1-9.3). The multivariable analysis shows that they remained significant ( $p<0.01$ ) (Table 1). Prior hysterectomy did not significantly decrease risk of abnormal cytology (OR 0.87, 95% CI 0.5-1.6).

**Conclusions:** Women treated surgically for VIN/vulvar cancer have a 10% risk of at least high-grade cytology on surveillance screening. Prior hysterectomy does not mitigate the risk, as 9% will develop VAIN2+. Extrapolating from current guidelines, we recommend surveillance cytology screening at least 6-12 months after treatment, especially in women with a history of immunosuppression or prior abnormal cytology.

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#### Poster #15

##### The effect of adjuvant therapy for high intermediate-risk endometrial cancer on patients with recurrent disease

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