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Speculum placement technique and perceived patient discomfort

Abstract

Many patients report discomfort associated with pelvic examinations, specifically upon placement of the speculum. This discomfort may discourage a patient from presenting for routine health maintenance and contribute to increase risk of preventable disease. There is a paucity in the literature describing techniques of speculum placement during pelvic examination and patient centered experiences. Over age and geographic strata, we compared vertical, oblique and horizontal speculum placement learned techniques versus those currently practiced. Additionally, we explored patient experience. We aim to apply outcomes to improve patient centered care and integrate findings to clinical skills labs/practicums of medical school reproductive health curriculum. Domestically trained physicians at an urban academic residency clinic completed a voluntary survey. Patients were surveyed after speculum placement during routine screening examination. The sample included physicians from each medical school region and across the age spectrum. The majority of providers identified oblique speculum placement as both learned and currently employed, with an increase in frequency of horizontal approach once in practice. Cohorts perceived discomfort at time of speculum placement and overall exam as comparable. Exploring patient experience during an examination commonly avoided due to perceived discomfort may be useful in promoting preventative health strategies. Inclusion of both vertical/oblique and horizontal techniques in medical school curriculum should be considered.

Keywords: speculum examination, pelvic examination, patient-centered, medical training, gynecology

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Abbreviations: ICD10, 10th revision of the international statistical classification of diseases and related health problems; ICD, a medical classification list by the World Health Organization

Introduction

The approach to teach medical students the pelvic speculum examination has been based on textbooks and standardized patient workshops.[1–8] A common technique of speculum placement includes introduction of the blades in an oblique manner at the introitus, requiring a 45- degree twist for final positioning.[5] Though many have been taught this technique, not all practice in this manner. Rather, divergent techniques are common, in particular, introduction of the speculum in a horizontal manner, avoiding twisting motion for final positioning.

Moreover, many patients note discomfort associated with the pelvic examination, specifically upon placement of thespeculum. This anticipation may discourage presentation for a health maintenance examination, increasing risk of preventable disease.[9–12] There is a paucity in the literature describing the techniques of speculum placement and patient centered experiences/patient discomfort.[13] We sought to compare educational techniques learned, across age and geographic training strata, to those currently used and explore the relationship between technique of speculum placement during the examination and perceived patient discomfort. We hypothesized that speculum placement not requiring a twist motion would decrease patient discomfort. We aim to apply findings to improve patient centered care and integrate findings into clinical skill practicums of medical school curriculum.

Methods

Data collection

A voluntary, electronic survey was distributed in Spring 2018 to domestically (United States accredited medical schools) trained faculty and resident physicians at an urban academic family medicine clinic. The survey queried: technique of pelvic speculum placement learned in medical school, current technique used (Figure 1), average number of speculum examinations performed weekly, age, gender, years in practice and geographical region of medical school. Survey responses were anonymous and compiled into a database.

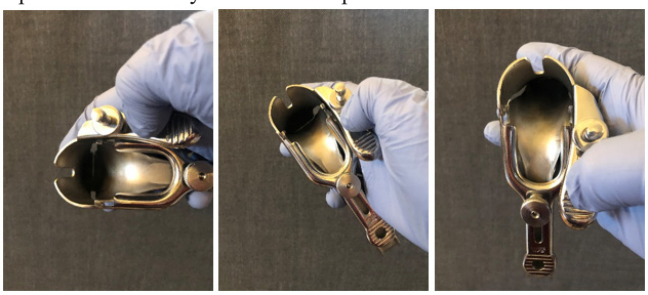

Figure 1 Vertical, oblique and horizontal positions of the speculum.

Vertical, oblique, and horizontal techniques of speculum placement are illustrated. The study specifically included vertical and horizontal techniques, as presented in the left and right panels, respectively.

Additionally, two clinical research providers conducted patient examinations over 24 weeks. This study was approached as exploratory research. Due to limited publications on this topic, convenience

sampling was utilized to gain initial insight of this topic. A sample size of at least 40 patients with ideal study participants numbering 100, was initially desired in this method comparison study.[14,15] However only 20 patients were enrolled as a larger study was not feasible due to resource constraints in this nonfunded study. Agreeable study participants were selected from eachresearch provider's clinical patient schedule on a nonrandom basis. The convenience sample are established patients of the family medicine clinic, aged 25-65, with indication for a pelvic speculum examination per standard cervical cancer screening guidelines. Patients presenting for first pelvic speculum examination, gynecological procedure, pregnant/post-partum status, symptom-based evaluation, and International Statistical Classification of Diseases and Related Health Problems, a medical classification list by the World Health Organization (ICD10) diagnosis of anxiety, cervical disease or vulvar condition history were excluded from the study. Patients consented to the study prior to examination and were not made aware of the employed technique of speculum placement. A Graves medium length metal speculum, prepared using warm water and a pea sized amount of lubrication gel applied to the distal aspect ofthe blades was utilized. Of the 20 patients, 10 were examined using the vertical technique of pelvic speculum placement (Cohort 1) and 10 were examined using horizontal technique (Cohort 2). Vertical technique ensured consistence of examination as a consistent oblique angle is difficult to accurately replicate.

Patients participated in a paper Likert survey after their examination. Topics queried included: age and gender demographics, history of normal spontaneous vaginal delivery, and number of prior speculum exams, perception of pain at speculum entry, and overall examination discomfort. Anonymous responses were identified by cohort and entered into a database for analysis. This study was approved by the Oregon Health and Science University Institutional Review Board.

Analysis

Frequencies and percentages were calculated for all variables. Mode was reported, stratified by medical school region, for learned and practiced techniques. Wilcoxon Mann Whitney tests were used to analyze ordinal data comparing level of discomfort between patient cohorts. Chi square tests were applied to categorical data of identified gender and occurrence of vaginal delivery. Patient age and number of deliveries recorded in the form of continuous/interval data were analyzed using a t test. All analysis was conducted using SAS 9.4 for Windows (SAS Institute Inc., Cary, NorthCarolina).

Results

Our physician survey response rate was 77.8% (21 of 27 surveys were completed, one was excluded from analysis (non-US trained). Table 1 displays demographic characteristics of the physician survey. The mean age of physician was 44.7 years. Mean time in practice was 14.3 years (range: 1 – 39). The four designated medical school regions of training were represented, as well as ranges of speculum exams performed weekly. Technique of pelvic speculum placement learned in medical school varied; vertical and oblique techniques additively formed the majority at 85%. Current speculum examination technique also varied; the majority of physicians noted oblique technique, 50%, with notable increase in frequency of horizontal approach from 15% to 25%. The only region demonstrating initial instruction in a horizontal manner was Southern while those from Mid Atlantic schools learned vertical approach (Table 2).

Table 1 Demographics of physician survey

Physician survey	
Age - mean (SD), range	44.7 (10.9), 30-69
Years in practice - mean (SD), range	14.3 (11.6), 1-39
Identified gender	**n (%)**
Female	13 (65)
Male	7 (35)
Speculum exam technique learned in medical school	**n (%)**
Vertical	8 (40)
Oblique	9 (45)
Horizontal	3 (15)
Current speculum exam technique	**n (%)**
Vertical	5 (25)
Oblique	10 (50)
Horizontal	5 (25)
Number of speculum exams performed each week by range	**n (%)**
0-2	9 (45)
3-5	8 (40)
6-10	3 (15)
Region of medical school training	**n (%)**
Eastern / Mid-Atlantic	8 (40)
Midwest	3 (15)
Southern	2 (10)
Western	7 (35)

Physician age range, years in practice, learned and practiced speculum placement techniques and region of training are presented.

Table 2 Physician survey -medical school region

Medical school region	**Number of physicians**	**Mode learned**	**Mode current**
Eastern / Mid-Atlantic	8	Vertical	Oblique
Midwest	3	Oblique	Oblique
Southern	2	Oblique/ Horizontal	Oblique/ Horizontal
Western	7	Oblique	Oblique

Regions of medical training include the four regions of study

For the patient survey, Likert scales included responses ranging from 3-5 and corresponding to uncomfortable, comfortable, and very comfortable patient experience. Likert responses 1 and 2, intolerable and very uncomfortable experience, were not reported. Cohorts did not differ by age (mean (SD), Cohort 1: 33.2 (13.7), Cohort 2: 32.2 (9.5), p = 0.87) or identified gender (% Female, Cohort 1: 100%, Cohort 2: 100%). Patient perceived discomfort during the time of speculum entry and overall exam is not different between patient cohorts (Table 3).

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Table 3 Demographics and outcomes of patient survey

	Cohort 1 -vertical	Cohort 2- horizontal	p value
Age - mean (SD), range	33.2 (13.7), 23-62	32.2 (9.5), 23-49	0.87
Identified Gender, n (%)			
Female	10 (100)	10 (100)	1.0
Have you had a normal spontaneous vaginal delivery (NSVD)?, n (%)			
No	9 (90)	8 (80)	1.0
Yes	1 (10)	2 (20)	
Number of NSVD - mean (SD), range	0.1 (0.3), 0-1	0.3 (0.7), 0-2	0.41
Number of prior speculum exams by range, n (%)			
2-5	7 (70)	5 (50)	
6-10	0 (0)	2 (20)	
11-15	1 (10)	1 (10)	0.64
16-20	0 (0)	1 (10)	
>20	2 (20)	1 (10)	
Comfort at time of speculum entry of introitus, n (%)			
Uncomfortable	2 (20)	2 (20)	
Comfortable	5 (50)	6 (60)	0.77
Very Comfortable	3 (30)	2 (20)	
Overall comfort during entire speculum examination, n (%)			
Uncomfortable	3 (30)	3 (30)	
Comfortable	6 (60)	4 (40)	0.59
Very Comfortable	1 (10)	3 (30)	

Personal history and study results per Likert survey.

Discussion

We sought to investigate the techniques of speculum placement learned and utilized by providers, as well as patient centered experiences regarding speculum placement. We hypothesized that speculum placement not requiring a twist motion would be better tolerated by patients, decreasing discomfort, and encouraging presentation for preventative health examinations.

Our physician survey, representing first year resident to end of career provider, revealed the oblique technique of speculum placement as the most commonly learned as well as practiced. Mid-Atlantic region trained physicians are more likely to have learned vertical placement technique. However, these providers have also changed their practice style. Interestingly, we found that vertical and horizontal placement techniques are equally comfortable from the patient's perspective. Our data set does not reveal variation to this based on a historical experience of exam or vaginal delivery. These findings serve as our main study strength as similar studies have not been published. One clinical trial investigating speculum placement was noted and reviewed; however final findings were not available nor published.[16] Our study was significantly limited by a small convenience sample. This weakness reduces the power of this study and increases the underlying margin of error. Patient bias of consent to or interpretation of examination, based on potential prior medical care by research provider performing exam, is also a weakness in this study. Additionally, the amount, type, and practice of including lubrication gel on the speculum, though found to have effect on patient perceived discomfort, was not included in this study.[17] Exclusion criteria impact, namely ICD10 dx of anxiety, was notably restrictive on patient eligibility. Future research could expand sample size of survey participants and includequalitative query.

Conclusion

Further exploration of patient experience during an examination in which many patients avoid due to perceived discomfort, may be useful in promoting preventative health strategies. Patient experience of vertical and horizontal speculum placement approaches is likely equally comfortable. Practical implications of this study suggest consideration of inclusion of both vertical/oblique and horizontal techniques in medical school curriculum.

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Conflicts of interest

The authors declare that there are no conflict of interests.

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