



AN AUDIT OF STUDENT PERSPECTIVE OF TWO DAYS HYSTEROSCOPIC TRAINING MODULE AMONG GYNECOLOGISTS IN INDIA

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ABSTRACT

Introduction and background: In the present scenario for a gynecologist to be able to perform endoscopic procedures is the need of the hour. The current three year residency curriculum in India lacks acquisition of hysteroscopy skills among residents. Training of hysteroscopic skills outside the operating room is increasingly implemented in residency programs around the world. However, in India no such teaching program has been adopted into practice. Therefore, at Manchanda's Endoscopic Centre (MEC), New Delhi we started a training program for gynecologists in hysteroscopy on simulators, with an aim to improve the endoscopic learning curve.

Methods: To assess the opinion of trainees on hysteroscopy performance and training, a survey was conducted after the 2 days hysteroscopy training programme among all trainees who enrolled for MEC workshop in between 2011 to 2017. The survey Comprised questions such as overall training session quality, wet lab training sessions, surgery enjoyable, interactive sessions, Your confidence level increased for starting hysteroscopy after training. The response from the students were taken as 1,2,3,4 where 1 stands for below average, 2 for Average and 3 for good and 4 for very good for each parameter.

Results: Total 78 trainees were included in the present study out of which 67.9% trainees mentioned overall session quality to be very good (p<0.001) whereas 60.2% trainees found wet lab training sessions as very good (p<0.001) and 73 % trainees rated the surgery enjoyable (p<0.001) as very good and 80.8 % trainees found our training sessions (p<0.001) as very good. Upon asking if their confidence level increased for starting hysteroscopy post our training session 37.2 % trainees said very good whereas 48.7% and 10.3% trainees said good and average respectively (p<0.001).

Conclusion: In the survey conducted post MEC training program the execution of hysteroscopic modules is judged as helpful in boosting their confidence level in performing basic procedures by gynecologists. Our module compared favorably with other modules around the world.

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INTRODUCTION

In the present scenario for a gynecologist to be able to perform endoscopic procedures is the need of the hour. Hysteroscopy is an essential surgical tool for therapeutic and diagnostic purposes in current gynecological practice. Although hysteroscopic procedures are comparatively safe, one may land up in grave surgical outcomes related to either inadequate surgical skills or increased operative durations¹. In order to become a safe and efficacious surgeon, one needs to adapt particular psychomotor skills besides a good hand-eye coordination². The traditional model of learning by experience with real patients has limited reach due to ethical concerns and hence hysteroscopy training has been shifted outside of the operating room³. Healthcare systems could be benefited due to this shift as it is cost effective as compared to actual operations⁴.

The current three year residency curriculum in India lacks acquisition of hysteroscopy skills among residents. Training of hysteroscopic skills outside the operating room is increasingly implemented in residency programs around the world. However, in India no such teaching program has been adopted into practice. Therefore, at Manchanda's Endoscopic Centre (MEC), New Delhi we started a training program for gynecologists in hysteroscopy on simulators, with an aim to improve the endoscopic learning curve.

Aims and Objectives

1. To assess post training survey of students with two days hysteroscopic training module.
2. To compare various hysteroscopic training modules prevalent in the world.

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MATERIAL AND METHODS

The present study was done on the trainee students who had attended a 2 days hysteroscopic training workshop conducted by Manchanda's Endoscopic Centre (MEC) from the year 2011 to 2017. The timings in those two days were 9 am to 5 pm IST. The tools that were used for the training of hysteroscopy were as follows-

1. Lecture sessions
2. Hands on training on simulator-
 - animal tissue models and
 - Inanimate models
3. Live surgery telecast
4. Assisting live surgeries
5. Round table discussions

All the trainees that were included in the present study were gynaecologists having post-graduation qualification and the gynaecologists in training (pursuing post-graduation)

To assess the opinion of trainees on hysteroscopy performance and training, a survey was conducted after the 2 days hysteroscopy training programme among all trainees who enrolled for MEC workshop in between 2011 to 2017. The data pertaining to the response survey was collected from MEC office. All collected data was registered anonymously.

The survey Comprised questions such as overall training session quality, wet lab training sessions, surgery enjoyable, interactive sessions, Your confidence level increased for starting hysteroscopy after training. The response from the students were taken as 1,2,3,4 where 1 stands for below average, 2 for Average and 3 for good and 4 for very good for each parameter.

All the statistical analysis was done using SPSS version 26.0. The categorical data was represented as count (percentage) and continuous data was represented as Mean±SD. One sample chi-square test was used to test the hypothesis if all the categories are equal. The p-value <0.05 is considered significant.



Fig 2 Hysteroscopy trainers at MEC's workshop

RESULTS AND DISCUSSIONS

Hysteroscopic training worldwide is not standardized. Training in this art is severely lacking during post-graduation courses in India and hence there are very few people who are adept at this life saving and uterus conserving procedure in the general gynaecologists armamentarium.

This is due to various reasons like the availability of equipment in government institutes where a majority of postgraduates get their training. There is inherent inertia sometimes to continue as it is and not inculcate newer developments' which is a human tendency. Indeed, there is a mismatch between private institutes and practice where development and hence expertise lies in such procedures but the postgraduates are not there vis a vis the government institutes where the opposite can be seen.

It is to bridge this gap and standardize training in hysteroscopy that MEC started their standard hysteroscopy two day training module.

Here we make an attempt to document and compare this module with others available.

Training Module

1. Lecture on various aspects of hysteroscopy, equipment, procedure, instruments, distension aspect, electro-surgery, diagnostic and operative aspects etc were taken explaining theoretical and practical aspects of various topics. Different faculty were given topics to speak about keeping in mind their expertise in the subject.
2. Round table discussions were kept for interaction with experts and to ask them questions pertaining to hysteroscopy.
3. Live surgery was performed by expert hysteroscopic surgeons which was relayed to the students in the lecture room and each trainee was given an opportunity also to assist in the surgery by rote and explained the practical set up in the operating room and equipment's so that they may be able gain knowledge to replicate this in their own set ups.

MANCHANDA'S ENDOSCOPIC CENTRE				
FEEDBACK FROM THE CANDIDATE AFTER THE COMPLETION OF HYSTERO SCOPIC TRAINING				
Parameters Evaluated	Below Average 1	Average 2	Good 3	Very Good 4
Overall training session quality				
Wet Lab Training Sessions				
Surgery Enjoyable				
Interactive Sessions				
Your Confidence level increased for starting hysteroscopy after training:				
Lectures:				
1. Basic office hysteroscopy				
2. Instruments and equipments				
3. Anesthesia in hysteroscopy				
4. Energy sources in hysteroscopy				
5. Tips and tricks in hysteroscopy				
6. Medico-legal aspects				
7. Newer developments & inventions in hysteroscopy				
8. Hysteroscopy in infertility				
9. Hysteroscopy markers: endometrial tuberculosis and chronic endometritis				
10. Ideal ultrasound in hysteroscopy				
11. Fluid management and new distension technologies				
12. Complications of hysteroscopy				
13. Stem cells in hysteroscopy				
Signature of the Trainee:				
Name:				
Date of Birth (dd/mm/yy)				
Contact No./ Mobile No.:				
Email:				
Hospital Address:				
Date of Training:				
Comments				

Fig 1 The post training survey form

The objective of the study was to evaluate whether hysteroscopy training program at Manchanda's Endoscopic Centre is judged as sufficient in daily practice, by assessment of the opinion on hysteroscopy training and current performance of Hysteroscopic procedures. A post training survey, regarding the performance and training of Hysteroscopy, self-perceived competence and confidence and also hysteroscopic skills acquirement was used.

A review of the articles on different hysteroscopic training modules were undertaken using google search and studied for the comparison purpose.

4. Printed matter and literature and videos on digital drives were provided to each trainee so that they may have a ready reckoner and record of the training.
5. Hands on training on simulators was given. There were two types of simulators used a) Inanimate models b) Models with animal tissue

During this trainees were taught practically how to assemble and take apart the instruments. Technique to perform a basic diagnostic and operative hysteroscopy and also hysteroscopic resection. They were given time independently to perform and practice on both models under supervision of an expert.

Each student filled a pre-training questionnaire with multiple choice questions which was evaluated and after completion of training the same was asked to be filled again by them and most of the trainees improved on their pre training scores.

Also on completion of training a detailed questionnaire regarding their experience of the training was handed to them so that the training method could be assessed and improved upon for future. (Fig 1)

Table 1 Baseline characteristics of the trainees

variable	Trainee (n= 78)
Sex	
Male	15
Female	63
Age (Mean± S.D.)	30±5.0 (range 26 to 60 years)
Type of hospital	
Teaching	40
Non- teaching	38

Table 2 parameters to assess the perspective of trainees

Parameters evaluated	Below average 1	Average 2	Good 3	Very good 4	P value
Overall training session quality	---	1(1.3%)	24 (30.8%)	53 (67.9%)	<0.001
Wet lab training sessions	---	3 (3.8%)	28 (35.9%)	47 (60.2%)	<0.001
Surgery enjoyable	---	4 (5.2%)	17 (21.8%)	57 (73%)	<0.001
Interactive sessions	---	---	15 (19.2%)	63 (80.8%)	<0.001
Your confidence level increased for starting hysteroscopy after training	3 (3.8%)	8 (10.3 %)	38 (48.7%)	29 (37.2%)	<0.001

MEC conducted two days training course between the years 2011 to 2017, which was attended by 78 trainees. Out of 78 trainees 63 were female and 15 were males. The mean age for the trainees was 30±5 years (Mean ±SD) and the age range varies from 26 years to 60 years. Out of 78 trainees 40 belonged to a teaching institute and rest 38 belonged to a non- teaching health care facility of India.

All the 5 parameters assessed through our survey came out to be highly significant (p<0.001). Total 67.9% trainees mentioned overall session quality to be very good whereas 60.2% trainees found wet lab training sessions as very good and 73 % trainees rated the surgery enjoyable as very good and 80.8 % trainees found our training sessions as very good. Upon asking if their confidence level increased for starting hysteroscopy post our training session 37.2 % trainees said very good whereas 48.7% and 10.3% trainees said good and average respectively.



Fig 3 MEC's box trainer Model

In comparison to laparoscopy, hysteroscopy skill is many a times considered to be difficult to acquire as here only the chief operator is in charge of the camera as well as operating instruments and most is dependent on his/her acumen and ability. Nevertheless, hysteroscopic skills can be acquired with proper training and practice. In order to master the challenges that arise in acquiring endoscopic skills such as loss of binocular vision, fulcrum effect, reduced range of motion and a fixed access point, psychomotor skills are need to be acquired^{5,6}. Camera navigation is an art that includes keeping the operative field in the centre along with maintaining a correct horizontal axis, providing a stable picture, sizing and focusing^{5,7}. So far laboratory teaching is carried on inanimate tissue and accessible animal tissue such as or pig bladder⁸ or sow uterus⁹. This setting is perfect for acquiring and evaluating coordination between eye- hand and foot¹⁰.

In current medicine practice legal and ethical issues arise from straightaway learning on the patients¹¹ Currently, a very few box trainers and virtual reality simulator are accessible for hysteroscopy training purposes¹²⁻¹⁴ However, prior to the execution of models, it is essential to validate it after its evolution.^{15,16}



Fig 4 Trainees practicing on visual stimulator

Table 3 Comparison of various hysteroscopic modules

Study	Model	Trainees	Methods	Comparison	Findings
Bajka et al ¹⁷	Virtual reality	62 gynaecologists and residents	Survey: realism, training capacity and general opinion	Between 36 novices and 26 experts	- Similar opinion regarding realism - Training capacity rated by novices higher than experts
Bassil et al ¹⁸	Animal model	25 Senior residents	Interactive learning session	Before vs after session	Improved knowledge and confidence
Elessawy et al ¹⁹	Virtual reality	52 gynaecologists, students and residents	Self-guided tutorial+ 2 repetitions followed by pre-test followed by 2 repetitions+ post-test	Pre-test vs post-test	Improved scores for both novices and experts.
Chudnoff et al ²⁰	Synthetic model	34 residents	Baseline test+ lecture+ demonstration+ supervised training until comfortable Lecture sessions + hands on training on simulators(on animal models and inanimate models)+ live surgery telecast+ assisting live surgeries+ round table discussions	Before vs after session	Improved skills, comfort and knowledge
Present study	Animal Model + inanimate Model	78 gynaecologists and residents		Survey Proforma and Pretest + posttest	Significantly increased confidence level (p <0.001)

A study conducted by Bajka *et al* in 2009 on 36 novices and 26 experts where novices rated training capacity higher than the experts whereas there was no difference in opinion regarding realism between the two groups¹⁷.

Bassil *et al.* in 2017, using animal model trained 25 senior residents in an Interactive learning session and tested their knowledge and confidence by giving multiple-choice questions before and after the session. The improved knowledge and confidence was noticed after the session¹⁸.

Elessawy *et al.* trained total 52 residents and gynaecologists on virtual reality based simulator, Pre-test and post-test was conducted, improved scores for novices and experts were noted¹⁹.

Regarding daily practice, more gynaecologists perform advanced procedures nowadays and their competence level has improved from before joining the training program. Therefore, simulation training might serve as an additional method to improve Hysteroscopic skills acquisition. Future research is needed to determine the value of simulation training in hysteroscopy.

This cost effective as well as ergonomic hysteroscopic setup coupled with pig bladder models constitutes an authentic and efficacious training system that offers basic hysteroscopic training outside the operation theatre with various advantages to the trainees and most importantly the patients.

CONCLUSION

In the survey conducted post MEC training program the execution of hysteroscopic modules is judged as helpful in boosting their confidence level in performing basic procedures by gynecologists. Our module compared favorably with other modules around the world. In order to improve the hysteroscopic skills accession, simulation training may serve as a supplemental method and should be made available to all gynaecologists. To incorporate these advanced procedures into residency training, simulator models could be implemented. Simulation models might offer an additional training method without involvement of the patient. Simulating hysteroscopy on animal tissue and inanimate models provides a unique and pragmatic way of training novices before performing procedures on live patients. However, to validate these simulators and to determine the role of incorporation of these training modules in residency curriculum further research is needed.

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