Original Study

Use of Hysteroscope for Vaginoscopy or Hysteroscopy in Adolescents for the Diagnosis and Therapeutic Management of Gynecologic Disorders: A Systematic Review

Jolinda Johary MD [1], Min Xue MD, PhD [1], Bin Xu MD [1], Dabao Xu MD, PhD [1,*], Aixingzi Aili MD [2]

[1] Department of Gynecology, Third Xiangya Hospital, Central South University, Changsha City, Hunan Province, China
[2] Department of Gynecology, Shanghai East Hospital of Tongji University, Shanghai, China

A B S T R A C T

Study Objective: The purpose of this article is to review the published literature and perform a systematic review to evaluate the effectiveness and feasibility of the use of a hysteroscope for vaginoscopy or hysteroscopy in diagnosing and establishing therapeutic management of adolescent patients with gynecologic problems.
Design: A systematic review.
Setting: PubMed, Web of science, and Scopus searches were performed for the period up to September 2013 to identify all the eligible studies. Additional relevant articles were identified using citations within these publications.
Participants: Female adolescents aged 10 to 18 years.
Results: A total of 19 studies were included in the systematic review. We identified 19 case reports that described the application of a hysteroscope as treatment modality for some gynecologic conditions or diseases in adolescents. No original study was found matching the age of this specific population.
Conclusions: A hysteroscope is a useful substitute for vaginoscopy or hysteroscopy for the exploration of the immature genital tract and may help in the diagnosis and treatment of gynecologic disorders in adolescent patients with an intact hymen, limited vaginal access, or a narrow vagina.
Key Words: Hysteroscope, Hysteroscopy, Vaginoscopy, Adolescents, Gynecologic problems

Introduction

Vaginal discharge or bleeding is the symptom most commonly reported by adolescent girls that are referred for gynecologic problems. The most common cause of vaginal discharge at these ages is infection due to a hypoestrogenized vagina, although other potential causes, such as congenital anomalies of the genitalia, trauma, foreign bodies, sexual abuse, and malignant disease, must also be excluded.[1,2]

With regard to virginity and childbearing possibility in the future, a careful approach is of paramount importance. The vaginoscopic and hysteroscopic approach with a hysteroscope provides a safe and non-traumatic method in assessing the reproductive organs because the scope of the hysteroscope is advanced into the vagina without a speculum or tenaculum.[3] Distension of the vaginal wall by distension medium can in turn provide a clear endoscopic view. These considerations have made clinicians opt for these procedures in assessing pathologies of the vagina, the surface of the cervix, the cervical canal, and the intrauterine cavity and other developmental anomalies of the sex organs in adolescent patients. Furthermore, the entire procedure can be undertaken without disrupting integrity of the hymen, whereas the traditional method requires the use of retractors and, therefore, disrupts this integrity.

However, research into the application of the vaginoscopic and hysteroscopic approach with hysteroscope has been limited in previous studies to case reports. To the authors' knowledge, no overviews are available on this issue in patients of developmental ages. Therefore, we performed a systematic review of the literature to evaluate the safety and feasibility of hysteroscope in diagnosing and establishing therapeutic management of adolescent patients with gynecologic problems.

Materials and Methods

This systematic review included all published articles regarding the use of hysteroscope in adolescents identified in the Pubmed, Scopus, and Web of Science databases for the period up to September 2013, using combinations of the following keywords: “hysteroscope,” “hysteroscopy,” “vaginoscopy,” “adolescents,” and “gynecologic problems.” All prospective and retrospective studies were eligible for this systematic review. Review articles were excluded from this review. Because of the paucity of literature, case reports were considered eligible for review. In addition, non-English studies and studies that could not be assessed in full text were excluded. After retrieving the eligible studies,

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* *Address correspondence to:* Dabao Xu, MD, PhD, Department of Gynecology, Third Xiangya Hospital, Central South University, 138 Tongzipo Rd, Changsha City, Hunan Province, China, 410013. Phone: +86-731-88618019; Cell: +86-13017386201
E-mail address: dabaoxu@yahoo.com (D. Xu).

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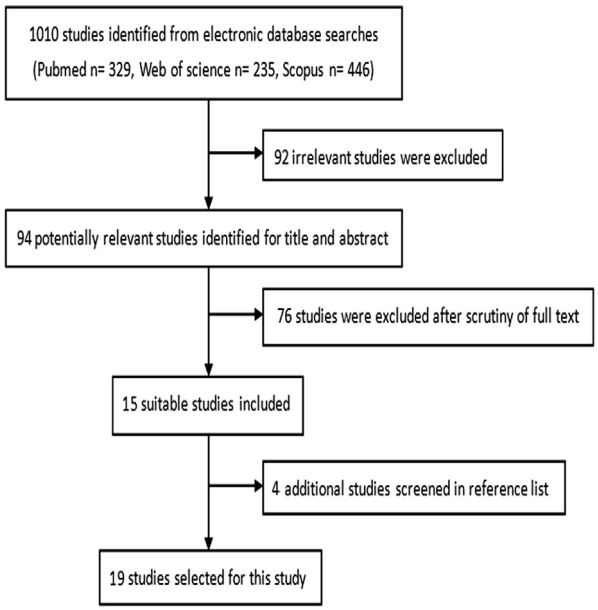

Fig. 1. Steps involved in literature inclusion were based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

a manual search was performed to check for potentially eligible studies in the references list of the retrieved studies.

From each of these studies, the following data were extracted: first author; year of publication; number of participants; mean age; technique of treatment; symptoms; and final diagnosis. The primary outcomes of interest included clinical outcomes after treatment (resolution of symptoms) and short- and long-term follow-up outcomes when available.

The steps involved in literature inclusion were based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, as shown in Fig. 1.

Results

Identification and Selection of the Literature

The initial search retrieved approximately 1010 citations. After evaluating titles and abstracts, 926 were found to be irrelevant and were therefore excluded, and 94 relevant studies were included. Further study of the full-text versions excluded 76 articles from this review. Four additional studies were retrieved from manual searches for potentially eligible studies in the references lists of the eligible studies. No original study was found matching the age of this specific population. Finally, 19 studies, all in English, were used for the systematic review.[4–22]

Description of the Included Studies

Approximately 19 patients were studied. Hysteroscopy for vaginoscopy was performed in 11 studies[4–14] and for hysteroscopy in 8 studies.[15–22] The characteristics of the studies that perform vaginoscopy and hysteroscopy are displayed in Table 1 and Table 2, respectively. The age of the participants was between 10 and 18 years old, which is consistent with the World Health Organization's definition of adolescence.[23]

Different symptoms were identified in these patients, including dysmenorrhea,[4,5,9,10,12,15,16,18,22] abnormal vaginal bleeding,[8,9,14,19] irregular heavy vaginal bleeding,[17] pelvic/abdominal pain,[11,13] protruding vaginal masses,[19,21] and agonizing pain and swelling along with difficulty in passing urine and stool.[9] The majority of the patients was known to have poor responses or lack of benefit after medical management and required further management, such as vaginoscopic or hysteroscopic procedures.

The gynecologic conditions or diseases in the adolescent populations varied across the studies. With regard to final diagnosis, the following diagnosis were found in the patients who underwent vaginoscopy: vaginal septum with uterus didelphys and obstructed hemivagina,[4–6,8–13] mosaic Turner syndrome,[7] and foreign bodies.[14] The following diagnoses were found in the patients who underwent hysteroscopy: a unicornuate uterus with a noncommunicating right rudimentary uterine horn[15,16]; a benign endometrial polyp[17]; complete uterine septum[18]; Müllerian adenosarcoma[19]; uterine leiomyoma[20,21]; and hybrid septate bicornuate uterus.[22]

The setting and instrumentation of vaginoscopy and hysteroscopy were displayed in Table 3 and Table 4, respectively. Different kinds of hysteroscope were used among studies. Sixteen studies used common rigid hysteroscope [4–6,8,10–18,20–22] while 1 study used flexible hysteroscope.[11] Five studies used small-diameter hysteroscope for diagnostic procedure[5,7,8,12,14] and fourteen studies used resectohysteroscope for operative procedure.[4–6,8,10–13,16,18,20,21] The surgical instruments that were used included: needle-cutting/hook-shaped electrodes[5,6,8,10,12,16,18,22]; angled loop[21]; grasping/biopsy forceps[7,14]; hysteroscopic scissors.[5] Normal saline (NaCl 0.9%),[4,5,7,8,11] sorbitol:manitol (5:1),[5,6,8,20] and manitol 5%[12] were used as distension media. Other studies did not clearly mention the setting and instrumentation used for the procedure.

Eight studies applied general anesthesia [4–6,8–10,12,13] to perform vaginoscopic procedure while 1 study did not apply any analgesia or local anesthetic.[7] For hysteroscopic procedure, 5 studies used general anesthesia.[15,18–20,22] In 5 studies,[11,14,16,17,21] the authors did not report whether or not they used anesthesia to perform the procedure. The time to complete the surgical procedures varied among studies. Three studies reported that it required 20 minutes,[7,13,20] 3 studies required 40 to 45 minutes,[4,18,24] and other studies did not mention the time. After the procedures, 11 studies stated that they successfully preserved the integrity of the hymen.[4–8,10–14,22] However, 8 studies did not make any reports concerning this issue.[9,15–21]

The primary outcome measurements were the resolution of symptoms, complications, and short- and long-term follow-up outcomes when available. All the patients had uneventful postoperative periods with no relapse of disease. No significant intra-operative or post-operative complications were encountered in any of the studies. The duration of follow-up varied across the studies from 1 month[16] to 5 years.[6,15]