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Early detection of endometrial lesions and the application of diagnostic hysteroscopy

子宮內膜病灶的及早偵測及診斷性子宮鏡的應用

Endometrial lesions, including hyperplasia and carcinoma, represent a significant concern in gynecological health. Early detection playing a crucial role in improving patient outcomes. Advances in diagnostic techniques have enhanced the ability to identify these conditions at an early and treatable stage. Among these, diagnostic hysteroscopy has emerged as a valuable tool for visualizing the uterine cavity and detecting endometrial abnormalities with high precision. The adoption of diagnostic hysteroscopy is particularly impactful in patients presenting with abnormal uterine bleeding (AUB). By providing a clear visual assessment, hysteroscopy helps to differentiate benign conditions from malignant transformations, guiding appropriate clinical management.Some studies showed that when combined with targeted biopsy, diagnostic hysteroscopy significantly increases diagnostic accuracy compared to traditional blind endometrial sampling techniques.

Despite its advantages, challenges such as accessibility, cost, and the need for specialized training must be addressed to optimize its implementation in routine practice. We review literatures about the importance of integrating diagnostic hysteroscopy into gynecological protocols to enhance the early detection of endometrial lesions, ultimately improving prognoses and reducing healthcare burdens associated with advanced-stage endometrial cancer.

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手術性子宮鏡的應用與妥適性

Intrauterine lesions might result in abnormal uterine bleeding, postmenopausal bleeding, menorrhagia, female infertility, and miscarriage. They generally include endometrial polyp, submucous myoma, retained gestational tissue or placenta, endometrial hyperplasia, endometrial cancer, intrauterine adhesion, septate uterus, Cesarean delivery scar defect, and intrauterine foreign bodies.

Diagnostic hysteroscopy is able to observe the uterine cavity at out-patient clinics. It is safe and accurate, provides immediate results under direct visualization, and the discomfort of patients is minimum. Office hysteroscopy now comes in either a flexible or rigid unit with a diameter around 3-4 mm. Hysteroscopic examination can be done after the distention of uterine cavity with normal saline or glucose water.

After diagnosis of the above-mentioned intrauterine lesions, operative hysteroscopy is employed to remove them under anesthesia. Merits of hysteroscopic surgeries include: no abdominal incision wound, short operation time, less painful, quick recovery, short interval for subsequent conception, etc. However, not every intrauterine lesion can be treated with hysteroscopic surgeries, and case selection before surgery is important.

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子宮鏡併發症的預防與訓練的再省思

子宮鏡可分成診斷性及手術性，它從陰道進入子宮，不需開腹。診斷性子宮鏡包括：異常出血、不孕症、習慣性流產等。手術性子宮鏡包括：子宮內膜肌瘤或息肉切除、子宮中隔切除、子宮內膜粘黏分離、拿異物（最常見是避孕器）、剖腹產疤痕出血處理等。此外不明原因一直流血，我們也可以使用子宮鏡去破壞子宮內膜，減少出血。

子宮鏡可分成軟式或硬式，軟式的只能做診斷。施行子宮鏡時鏡頭旁接上光源，另外要用一些擴張劑（因為子宮平常是貼著的，只有懷孕時才會被撐大），因此我們要使用一些東西把它擴張，這樣才看得到裡面。我們可以用 CO2、生理食鹽水、或葡萄糖水即可。子宮鏡手術最好的時機是：月經剛結束，排卵期前。因為排卵後子宮內膜變厚，就不易看了。子宮鏡手術的術前用藥包括：避孕藥、黃體素或是使用 PG E1 或海草棒擴張宮頸。一般若為診斷性，我們上局部麻醉就可以，或以靜脈注射做全身麻醉。手術性子宮鏡需要時間較長，靜脈全身麻醉以外，也可以使用 LMA。

如前所述，子宮鏡手術適應症包括：(1) 異常子宮出血：例如子宮內膜息肉、子宮黏膜下肌瘤造成出血 (2) 拿避孕器、子宮內異物 (3) 不孕症及習慣性流產評估 (4) 先天性子宮異常：子宮隔膜 (5) 子宮腔沾粘 (6) 子宮內膜燒灼止血 (7) 剖腹產疤痕出血處理及疤痕處外孕切除。

小細節成就完美，良好的準備工作是子宮鏡手術成功的基石。子宮鏡手術注意事項包括： (1) 基本資料：年齡、是否懷孕、是否曾接受子宮手術 (2) 子宮大小及病變或腫瘤位置 (超音波) (3) 瞭解子宮腔深度及曲度；若子宮前傾明顯，可以請助手輕壓下腹部以利手術進行 (4) 確實 Sounding，了解子宮腔真正深度及曲度，不要在超出子宮腔深度以外操作 (5) 子宮頸擴張：一般使用 Hegar dilator to No. 9 再置入 hysteroscopy 之後擴張大小 (No. 10~15) 依取瘤大小決定 (6) 適度調節水量：出水--排出血水及血塊，使畫面清楚；掌控 I/O：計算水量，避免 fluid overload 及 electrolyte imbalance。

子宮鏡手術併發症包括：(1) 子宮穿孔，或傷及臟器（有些地方較薄，要特別小心）(2) 出血 (3) 水中毒（灌太多可能會跑到血管去）(4) 氣體栓塞（若打 CO2，可能造成氣體栓塞）(5) 子宮腔沾粘 (6) 感染。

對於子宮鏡手術併發症，最好的處理方式就是事前預防，減少併發症發生。如前所述，良好的準備工作是最重要的。一旦發生併發症，早期警覺並及時處理是成功挽救併發症的基石。雖然子宮鏡像是小手術，但絕對不可以輕率為之，正確的觀念和嚴格的訓練必不可少。有心開始從事子宮鏡的醫師都應該接受子宮鏡基礎及進階的訓練課程及實作，未來學會也繼續會推動子宮鏡的訓練課程及認證。

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健保給付婦產科機器手臂輔助手術的訓練與認證

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Ever since the approval of DaVinci robotic surgical system for gynecologic surgery by FDA in 2005, the rapid adoption of robotic assisted surgery among gynecologists is attributed to the advantages of 3D vision, wristed instruments and improved ergonomics. More and more gynecological surgeons employed robotic-assisted procedure for the management of gynecological diseases. While robotic-assisted surgery has become a popular and widespread technique accepted by gynecologists as an appropriate alternative to laparoscopic surgery in the management of patients with gynecologic diseases, the Taiwan’ s National Health Insurance (NHI) program currently only provides for the laparoscopic surgery. The NHI program in Taiwan is a universal single-payer health insurance program that has been providing comprehensive coverage for all civilian residents in Taiwan since 1995. Robotic-assisted surgery is originally not covered under the NHI program, and it is an out-of-pocket cost for patients receiving the operation. However, starting on September 1, 2024, Taiwan’ s NHI has covered some different gynecological procedures performed by the robotic assisted surgery. Past research has shown that health insurance status is an important nonclinical predictor influencing women’ s decisions on the use of robotic-assisted surgery for gynecologic diseases. The long-term impact of the coverage of robotic-assisted surgery under the Taiwan’ s NHI program deserves considerable attention. An important question is how do we maintain the quality of care among women who undergo robotic-assisted surgery for both gynecologic benign and malignant indications? TAOG suggests that the gynecologist who is being credentialed must include satisfactory completion of an accredited gynecologic program to perform robotic-assisted surgery and observed/assisted for a minimum of ten cases by a certified gynecologist with such experience. In my experience, when compared to laparoscopic surgery, robotic surgery can perform more complex surgeries such as anastomosis, lysis of adhesions, and are particularly suitable for obese patients or those with large uteri. Under the coverage of Taiwan’ s NHI program, I believe, in the future, robotic-assisted surgery will become a popular and widespread alternative to laparoscopic surgery in the management of patients with gynecologic diseases by gynecologists in Taiwan.

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單孔腹腔鏡手術的現況與展望

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單孔腹腔鏡手術（Laparoendoscopic single incision surgery, LESS）是一種微創手術技術，透過單一切口進行腹腔內操作。相較於傳統的多孔腹腔鏡手術（Multiport Laparoscopic Surgery, MPLS），單孔腹腔鏡手術具有更佳的美容效果、減少術後疼痛、縮短恢復時間等優勢，因此自 2010 年後在婦產科領域受到許多的關注與應用。

單孔腹腔鏡手術主要透過肚臍部位進行手術，利用一個特殊的多通道套管（port）或利用手套製造多個套管（home-made port）插入手術器械和內視鏡。由於所有器械需從同一個切口進入，可能會造成器械操作上的困難，例如：

- 器械互相干擾（crowding）
- 視野受限（visual limitation）
- 學習曲線較長（learning curve）

婦產科領域的應用：良性腫瘤手術，包括子宮切除、肌瘤切除手術、卵巢腫瘤手術、骨盆重建手術，以及部分癌症手術等。研究顯示，對於適合的患者單孔手術與傳統多孔腹腔鏡手術相比，手術時間相近，術後疼痛較低，患者滿意度更高。

然而，單孔腹腔鏡手術與傳統多孔腹腔鏡手術相比，其技術上更具挑戰性，可能導致特定的併發症。常見併發症：

1.手術視野受限： 由於所有器械需經由單一切口進入，手術空間和影像視野容易受限，器械之間可能互相碰撞，增加操作難度。
2.器械干擾： 器械在同一通道進入時，可能造成彼此碰撞和干擾，失去傳統多孔腹腔鏡手術的三角空間感，增加手術操作的複雜性。
3.縫合與打結困難： 在單孔腹腔鏡手術中，縫合及打結技巧更具挑戰性，可能需要使用特殊的縫線（如帶倒鉤的縫線）或止血凝膠來輔助。
4.切口相關併發症： 由於單一切口的特性，可能引起切口相關的併發症，如感染或疝氣。
5.內臟損傷： 如膀胱損傷等內臟損傷在婦科腹腔鏡手術中雖然罕見，但仍可能發生。

預防與應對措施：

- 術前評估：仔細評估患者的解剖結構和病情，選擇適合的手術方式。
- 技術培訓：接受專業的單孔腹腔鏡手術培訓，熟悉相關器械的使用。
- 器械選擇：使用可彎曲的器械、不同長度的器械，減少器械之間的干擾。
- 輔助工具：善用子宮托、肌瘤鉗、多功能器械等輔助工具，改善手術視野。

總之，單孔腹腔鏡手術在婦產科的應用具有諸多優點，但也伴隨特定的併發症風險。透過嚴格的術前評估、醫師技術培訓和適當的器械選擇，可有效降低併發症的發生率，確保手術的安全與成功。

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Natural Orifice Transluminal Endoscopic Surgery (NOTES): Current Status and Future Prospects

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Natural Orifice Transluminal Endoscopic Surgery (NOTES) is increasingly recognized as a groundbreaking advancement in gynecologic surgery. By utilizing natural orifices, such as the vaginal canal, NOTES enables scarless surgery, reduces postoperative pain, shortens recovery times, and minimizes disruption to abdominal structures. This technique holds particular significance in minimally invasive gynecologic procedures, ranging from benign conditions to oncologic surgeries.

NOTES has been successfully applied to a variety of gynecologic procedures, including hysterectomy, myomectomy, adnexal surgeries, and surgical staging for early-stage endometrial cancer. Studies demonstrate that transvaginal NOTES (vNOTES) allows for complete surgical staging in early-stage endometrial cancer, encompassing hysterectomy, bilateral salpingo-oophorectomy, and sentinel lymph node biopsy. These procedures achieve low complication rates and excellent oncologic outcomes, making vNOTES a promising alternative to conventional methods.

The future of NOTES in gynecology is exceptionally promising, driven by ongoing advancements in technology and clinical expertise. Refined techniques and tools are expected to expand its applications, potentially making NOTES the standard for complex oncologic surgeries, such as advanced endometrial and ovarian cancers. Additionally, its role in pelvic reconstructive surgeries and other gynecologic interventions is anticipated to grow.

To fully establish NOTES as a reliable and widespread surgical approach, large-scale randomized controlled trials are crucial to validate its long-term safety and efficacy compared to traditional methods. Moreover, comprehensive training programs and global collaborations will play a pivotal role in facilitating its adoption among gynecologic surgeons worldwide.