Recent advances in Gynecology

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Medicine is an ever-growing field. New innovations in surgical techniques, diagnostic methods and technology lead to changes in clinical practice every day. The specialty of gynecology is no exception. So, what is new in gynecology?

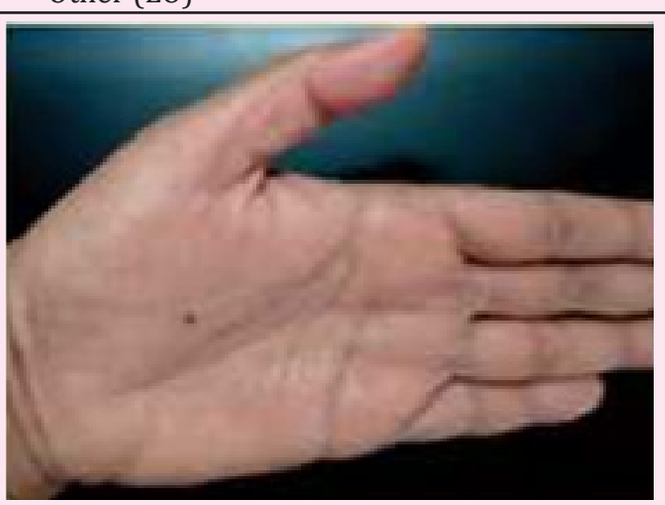
Benign gynecological conditions

- The new classification of abnormal uterine bleeding (International Federation of Gynecology and Obstetrics, 2018) has included all the causes of uterine bleeding, replaced the former vague terminologies with clear etiologic distinction between structural and non-structural abnormalities[1].

(Fig 1) This has made evaluation and management much simpler.

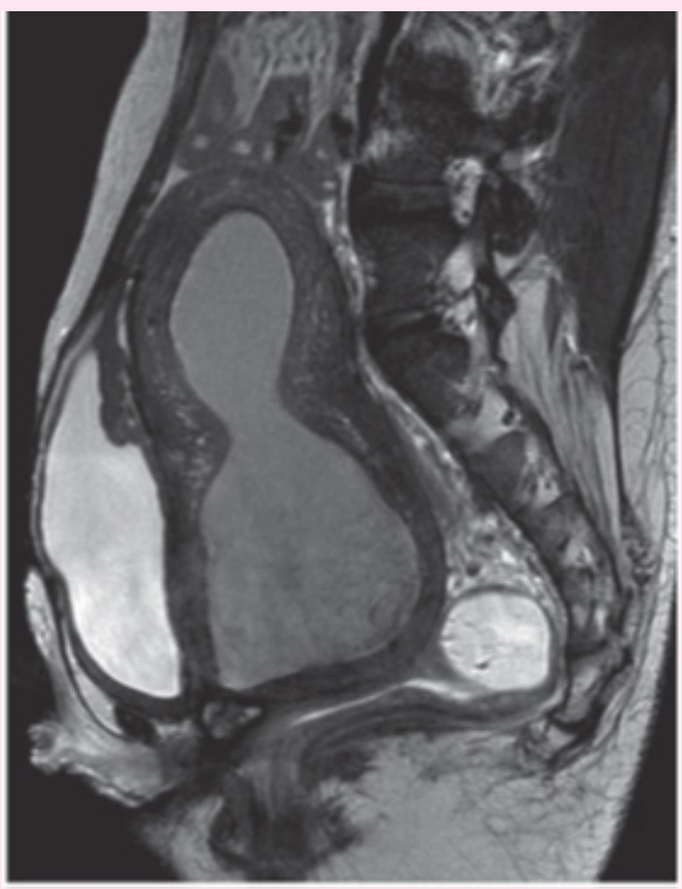
- Liberal use of imaging modalities, especially ultrasonography and magnetic resonance imaging (MRI) have simplified the assessment of hitherto difficult to assess conditions such as congenital Mullerian anomalies,(Fig 2) adenomyosis, location of myomas, endometriosis and extent of genital tract malignancies.
- Levonorgestrel intrauterine system has revolutionized the

FIGO Classification of AUB

PALM	COEIN
P - Polyp	C - Coagulopathy
A - Adenomyosis	O - Ovulatory dysfunction
L - Leiomyoms	E - Endometrial
- Submucosal myoma (LSM)	I - Iatrogenic
- Other (LO)	N - Not otherwise classified
	

management of abnormal uterine bleeding, endometriosis and endometrial hyperplasia and markedly reduced the need for hysterectomy in benign gynecological conditions.
- Introduction of selective progesterone receptor antagonists and gonadotropin releasing hormone (GNRH) antagonists[2] have been a major breakthrough in the medical management of myomas and endometriosis.

Fig 2. Magnetic resonance image showing hematometra and hematocolpos in a girl with primary amenorrhea



Menopause

- Some clarity has emerged in the management of menopausal women. Randomized trials and meta-analyses have shown that menopausal hormone therapy is the best option for the management of vasomotor symptoms and urogenital atrophy associated with menopause[3]. However, it should not be used solely for the prevention of osteoporosis or coronary heart disease.
- In women <10 years after menopause and 50-59 years of age, the risk of coronary heart disease with menopausal hormone therapy is low and there is a reduction in all-cause mortality. Breast cancer risk increases only after 5 years of use and is higher with estrogen- progestin combination than estrogen alone. These facts have set the boundaries for the age of commencement and duration of menopausal hormone therapy.
- Venlafaxine has been found to be a good alternative for management of hot flashes. Combination of a Selective Estrogen Receptor Modulator and estrogen (benzedoxifene and conjugated estrogen) is another promising alternative but larger trials are awaited[4].

Reproductive medicine

- Embryo cryopreservation and frozen embryo transfer have been performed success fully for the past decade. The documented safety and good perinatal outcome have now encouraged the adoption of this convenient technique in all ART centers.
- Ovarian tissue transplantation[5] is now a promising technology for women with primary ovarian insufficiency and women undergoing chemotherapy.
- Genetic testing of embryos on single cells to select the best and the most competent ones has now become acceptable, affordable and reliable.
- Cancer screening
- Human papilloma virus (HPV) testing has become the primary modality of screening for cervical cancer in the developed world in the past few years. The World Health Organization, in 2021, has recommended this as the screening modality of choice in low resource setting as well[6]. Vaccination against HPV is now the norm for girls and boys from age 9 to 26. Nonavalent vaccine is available all over the world now.
- While screening for endometrial cancer is not recommended for the general population, women at high risk, with a family history of Lynch Syndrome, if positive for the gene mutation, should be screened using transvaginal ultrasonography, hysteroscopy and endometrial sampling from age 30-35.
- The UK Collaborative Trial of Ovarian Cancer Screening group7 has reported that after 16 years of follow up, there is no significant benefit with multimodal screening. Hence [7]multimodal screening for general population for ovarian cancer is not recommended.

Evaluation of adnexal mass

- Differentiating a benign from a malignant ovarian mass has always been a challenge. This is crucial in younger women where conservation of the ovaries is important. High frequency ultrasonography is extensively used for this purpose.
- Earlier Doppler indices such as resistance index have been found to be lacking in sensitivity. They have been replaced by the classification by International Ovarian Tumor Analysis (IOTA) in which the benign, malignant and inconclusive features are defined.
- The Ovarian Adnexal Imaging Reporting Data system ('O' RADS) classification for the interpretation of ultrasonography findings developed by the American College of Radiology is now used to assign scores to the ovarian masses according to the risk of malignancy[8].

Gynecological Oncology

- There is better understanding of the molecular and genetic profile of gynecological cancers in recent years. Several hereditary cancer related genes have been identified and next generation sequencing (NGS) permits rapid genetic analysis. A classification based on prognosis according to NGS has been introduced in endometrial cancer.
- Molecular tumor profiling has helped in the development of targeted therapies in ovarian and endometrial cancers. Angiogenesis inhibitor (bevacizumab) and pathway specific therapy with Polyadenosine Phosphate-Ribose (PARP) inhibitors[9]. now recommended as first line and maintenance therapy in advanced ovarian cancer in women with germline mutations, has led to improvement in progression- free survival.
- Sentinel node mapping has made a big difference to the extent of node dissection, prognostication and postoperative morbidity in endometrial, vulvar and early cervical cancers.

A radiotracer labelled dye is injected into the tumor and the positive nodes are identified. Node dissection can be omitted if the sentinel node is negative. Extensive pelvic and paraaortic lymphadenectomy can be avoided.

Fertility sparing therapies

- Gynecological cancers do occur in young women. Radical surgery involves oophorectomy and chemotherapy is ovariotoxic. Fertility sparing treatment can reduce the reproductive impact in these women. Early cervical cancers (stage 1A2, B1) limited to the cervix with no parametrial invasion can be treated by laparoscopic radical trachelectomy and pelvic lymphadenectomy.
- Early-stage endometrial cancers limited to the uterine fundus with no myometrial invasion are now treated with progestins.
- Germ cell tumors of the ovary can be treated by unilateral oophorectomy, sparing the normal ovary. Epithelial ovarian cancers have a poorer prognosis; hence only carefully selected patients with low risk early ovarian cancer can be managed by unilateral oophorectomy.
- Many challenges in gynecology have been met with new diagnostic and treatment modalities. New challenges have replaced old ones, as in all fields of medicine. Basic Research and clinical trials with newer therapies will continue to help us face these challenges.

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