

Abstracts of Lectures from the 9th Postgraduate Refresher Course 2008

Management of Gynaecological Cancers in Adolescents

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Cancers are the second most common cause of death in children and adolescents. The more common type are non-solid malignancies and gynaecological cancers are very rare. Until the advent of chemotherapy many of these were lethal cancers. Often clinical suspicion is not raised early in the development of the cancer by the patient herself, her parents or by physicians. Important presenting symptoms include altered menarche, altered menstrual function, or irregular vaginal bleeding, a myriad of endocrine abnormalities, and abdominal distension. Once concern is raised, involvement of a multi-disciplinary team is essential and the team must be competent in dealing with the paediatric/adolescent patient and her family. Clinical examination is often suboptimal and recourse to examination under anaesthesia is frequently necessary. Routine blood investigations are often not helpful and more specific tests include germ-cell tumour markers (HCG, AFP), and hormonal profiles (especially androgen profiles). Management of Gestational Trophoblastic Neoplasia (GTN) should be at specialist regional centres. Radiological investigations may require sedation or general anaesthesia. Surgical planning must involve the parents as the surgery is potentially mutilating, may distort body-image and compromise if not remove both fertility potential and sexual functioning. The goals are tumour eradication and preservation of function. The typical cancers seen in adolescent years are germ cell tumours, ovarian stromal tumours, and genital rhabdomyosarcomas. Until the cessation of diethylstilbestrol use, cervico-vaginal clear cell adenocarcinomas, although rare, were well-recognised. It is mandatory to have a specialist pathologist and during surgery a frozen section service must be available. Adjuvant treatment may involve chemotherapy and a specialist team must be involved. Consideration must be given to ovarian function, fertility and toxicity, including the risk of a second malignancy. Radiotherapy is rarely indicated but has serious long term sequelae. Palliative care for children/adolescents is in general under-resourced and must be addressed. Genetic counselling may be required also. Long-term follow-up is required to assess physical, psychological and psychosexual well-being.

ANATOMY OF THE ABDOMEN AND PELVIS FOR GYNAECOLOGISTS

Knowledge of topographical anatomy and surgical anatomy is the cornerstone of surgical practice. Yet, in recent years undergraduate teaching has devoted less time to anatomy and postgraduate training places little emphasis on acquisition of surgical anatomy knowledge. Traditional methods of teaching have been replaced by computer-aided programmes, and “dry-labs”, but there has been a resurgence of interest in cadaveric dissection. It is clear that what anatomists and surgeons see and describe are often dissimilar some clarification is needed. The philosophy in postgraduate surgical training often has been “not to go looking” as opposed to specifically identifying structures. Another central tenet of surgical practice is to achieve adequate access and exposure to perform the planned operation safely and to deal with the unexpected. This requires thorough pre-operative evaluation and knowledge of tissue planes and spaces, so that structures can be safely mobilised. Knowledge of pelvic anatomy requires an understanding of how the pelvis is viewed from the abdominal and perineal route. Recognition of anatomical variations including those due to disease and/or prior treatment is important for interpreting radiological images and planning surgery. It seems inevitable that postgraduate surgical training must integrate a more formalised teaching of anatomy, including cadaveric dissections.

CONTROVERSIES IN THE MANAGEMENT OF ENDOMETRIAL CANCER

It is often expressed that endometrial cancer presents early and with low stage such that prognosis is better compared to other gynaecological cancers. However, stage for stage, the evidence does not support this. Two main types of endometrial cancer exist - the common epithelial or glandular type and those arising from the stroma. The glandular cancers include varying subtypes of which clear cell and uterine papillary serous are high risk tumours with a poorer prognosis. The endometrial stromal sarcomas (ESS) are rare and broadly classified into low-grade and

high-grade. The high risk malignant mixed müllerian tumours (MMMT) are now arguably better classified as undifferentiated/high grade epithelial cancers rather than as sarcomas. The major controversies are (1) the role of lymph node dissection/sampling (2) what lymph nodes to remove – pelvic and/or para-aortic (3) the role of adjuvant treatment, in particular radiotherapy [RT] (4) management of recurrence. Other controversies include, the best mode of pre-operative imaging, the obese patient, stage IIb endometrial cancer, the role of adjuvant treatment in patients with positive peritoneal washings as the only evidence of extra-uterine disease, and the management of the adnexae in young patients with endometrial cancer. The evidence is in favour of a laparoscopic approach in most cases and arguably this might be superseded by robotic surgery. There still remains a lack of consensus on the management of many aspects of endometrial cancer. With regard to ESS, low grade disease does not require adjuvant treatment and the evidence of efficacy for pelvic RT in high-grade ESS is weak.

SURGICAL MANAGEMENT OF RECURRENT GYNAECOLOGICAL CANCERS

Many patients with gynaecological cancers develop recurrence. Fundamentally this represents failure of primary treatment and harbours a poor prognosis in

most cases, a notable exception being local relapse of squamous cell cancer of the vulva. Relapse within 6m of completion of primary treatment is considered persistent disease and in the literature this is often not distinguished from recurrent disease (relapse >6m from completion of treatment). The presentation may be symptomatic or asymptomatic, diagnosed clinically, biochemically or radiologically. Other than for ovarian/fallopian tube/primary peritoneal cancer, recurrence should be proven cytologically, and preferably, histologically. A metastatic workup is essential and this may involve a laparoscopy. Careful counselling is mandatory. The treatment goals must be defined as either for curative intent or for palliation. An important surgical decision is “not for surgery”. Surgery should be undertaken by a specialist team. In most cases it is a planned operation and not an emergency. Knowledge of the prior treatments, in particular details of the prior surgery, is mandatory. The surgical challenge is greater in previously irradiated patients. In most recurrent cancer cases surgery is part of the overall management plan, an exception being most cases of local recurrence of vulval cancer which often require surgery only. While reports focus on overall survival and disease-free survival, insufficient attention has been paid to quality of life issues. The ultimate treatment of recurrent disease is its prevention by improved primary treatments and more effective screening.

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New Concepts in Preterm Labour

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Preterm birth is an international problem that is associated with significant neonatal morbidity and mortality and cost of care. While there have been significant advances in neonatal intensive care, these advancements have been less forthcoming for prevention and treatment for preterm labor and premature rupture of membranes and preterm birth. As such, the rate of preterm delivery continues to increase and is disparate in ethnic minority populations. The diagnosis and prediction of who is at risk for preterm delivery has been enhanced by current evaluation of cervical length and fibronectin. As such, the current research initiatives have focused on screening, prediction and prevention whereas there have been slow advances in successful tocolytic treatment for preterm labor. This presentation will focus on new concepts and controversies in evaluation and pharmacological management for preterm labor and preterm birth prevention.

Teenage Pregnancy and Sexually Transmitted Diseases

Teenage pregnancy and births to teens has decreased in the U.S. and many other developed country over the last decade. However, the problems of adolescent sexuality, pregnancy and birth remain a major public health concern. Pregnancy outcome in adolescence is associated with increase risk for sexually transmitted diseases including HIV and pregnancy complications such as prematurity and preeclampsia. Adolescent pregnancy prevention programs in the US have focused primarily on abstinence education as well as appropriate contraceptive options. Recurrent pregnancy and recurrence of sexual transmitted diseases are a consequence of early sexuality and in developing cultures early childbearing is further associated with maternal morbidities and mortality. This presentation

will examine the prevalence and risks for adolescent pregnancy, sexually transmitted diseases and discuss contraceptive options pertinent to the adolescent.

Substance Abuse in Obstetrics

Illicit drug and prescription drug abuse during pregnancy is associated with maternal and fetal morbidity and adverse pregnancy outcome. The pregnant woman with substance abuse poses an array of psychosocial and medical concerns for the clinician. The long term health risk and cost for overall care is significantly higher for the women with substance abuse. This presentation will review the maternal and fetal concerns for illicit drugs such as marijuana, opiates, cocaine and amphetamines as well as various prescription drugs with abuse potential. Strategies for intervention and improvement of overall perinatal outcome and long term health will be addressed.

Adult Congenital Heart Disease in Pregnancy

Cardiac disease is a dreaded complication of pregnancy that leads to maternal morbidity and mortality. While the overall prevalence of rheumatic disease has declined, congenital heart disease and cardiomyopathy have become the predominate cardiac concern during pregnancy. As symptoms of pregnancy can mimic the failing heart, diagnosis of heart disease is often delayed thereby increase morbidity and mortality. In addition, women who have survived childhood congenital heart disease have reached childbearing which poses unique maternal, genetic and neonatal risks. This presentation will address common congenital heart conditions and factors associated with adverse perinatal outcomes.

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The Latest in the Surgical Management of Female Stress Urinary Incontinence and Pelvic Organ Prolapse

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Objectives

Pelvic organ prolapse (POP) and female stress urinary incontinence (SUI) are common conditions that impacts on women's quality of life. The lifetime risk for undergoing prolapse and continence surgeries is 11%. At least 30% of women requires re-operation for prolapse and 10% requires repeat continence surgery. Many surgical techniques are developed to decrease the incidence of recurrent prolapse. There are also new development in the surgical treatment of female stress urinary incontinence.

Pelvic Organ Prolapse Surgery

To reduce the recurrence of prolapse surgery, multiple kinds of mesh are being developed and used to reinforce or replace the weakened muscles and endopelvic fascia and thus reduce the recurrence rate. The anatomic cure rate for pelvic organ prolapse surgery using synthetic mesh was reported at around 42-100% depended on the definitions of cure in the different studies and the types of synthetic mesh used. Type I Polypropylene mesh is the best synthetic mesh for pelvic floor reconstruction because it is monofilament and macroporous. Pore size of more than 75 μ m allows the entry of leukocytes and macrophages to counteract the bacterial colonization and for the fibroblasts to infiltrate to form the new collagen.

Recently, there is a new mesh with insertion kit called Prolift. It is produced from low weight, monofilament and high porosity polypropylene to possibly reduce the local complication rates such as mesh erosion and dyspareunia. Anterior mesh is inserted through the

obturator foramen and anchored at the tendinous arches of the pelvic fascia, while the posterior mesh is inserted through the sacrospinous ligament. One retrospective study of 687 women with anterior and posterior vaginal wall prolapse repair using Prolift reported excellent a short term success rate of 94.7% with minimal perioperative and postoperative complications.

Continence Surgery

Minimally invasive transvaginal tape surgery (midurethral sling) has drastically changed the surgical management of female SUI. The sling provides midurethral support with dynamic kinking during increase in intraabdominal pressure. TVT (Tension free vaginal tape) is currently regarded as the gold standard in the treatment of SUI. The second generation TVT called TVT-O (Tension free vaginal tape-obturator) is inserted through the obturator foramen, therefore reduces the risks of bladder, bowel and vascular injuries. It has similar cure rate as TVT. However, it causes more leg pain or discomfort (up to 50%) as the tape has to pass through the thigh muscles. The third generation of TVT (TVT-SECUR) is being developed to reduce the thigh pain and discomfort caused by TVT-O. However, we are still awaiting the long-term outcome of TVT-SECUR.

Conclusion

There are many exciting and promising developments in the surgical management of pelvic organ prolapse and stress urinary incontinence. These would definitely help women greatly suffering from pelvic organ prolapse and stress urinary incontinence.

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Robot Enhanced Laparoscopic Surgery in Gynaecology

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Over the past two decades, advances in camera miniaturization and resolution; through a 3-chip digital camera, have enabled gynecologists to perform many operations through small incisions (minimal access surgery). The images of the organs (e.g. uterus and ovaries) within the abdomen is transmitted on a 2-dimensional monitor screen with the surgeon directly moving long laparoscopic instruments through fixed points of entry through the abdomen. However, many hours of training and adaptation to the loss of depth perception were required. This was because the surgeon was restrained by the limited number of movements or maneuvers possible, as the ultimate dexterity of the human hand could not be mimicked within the abdomen. The surgeon had to rely on re-adaptation to the 2-dimensional fixed fulcrum-type surgery. This was a handicap particularly in myomectomy, where complex laparoscopic suturing techniques to adequately and meticulously repair the defect in the uterus is required. This is a very critical step as failure to attain a secure repair may predispose to uterine dehiscence at the myomectomy site during pregnancy antenatally and/or in labour. It is for this reason that laparoscopic myomectomy is mired with controversy. The other area where a great deal of surgical dexterity is required is microscopic tubal reanastomoses. Here very fine sutures (7 O & 8 O) are required and very fine and extremely steady maneuvers over long periods of time is required. In addition, complicated surgeries such as hysterectomy in instances of severe pelvic adhesions and restoration of pelvic anatomy in cases of severe endometriosis (frozen pelvis) have been sometimes too challenging for the laparoscopic approach necessitating a laparotomy. However, the robotic arm with the 7 degrees of freedom and enhanced vision enables the surgeon to accomplish some of these surgeries laparoscopically without resorting to laparotomy. Furthermore, the robot is intuitive in that the movement of the surgeon's hand is followed by movements of the robotic instruments in the same direction.

The applications of robotic surgery in gynecology are:

Reproductive surgery: Tubal reanastomosis, Myomectomy, Ovarian transposition

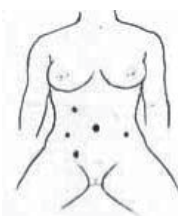
Reconstructive pelvic surgery: Burch procedure, Colposacropexy

General gynecology: Hysterectomy – especially in difficult adhesive disease states Dermoid cystectomy, oophorectomy, salpingo-oophorectomy Salpingectomy, salpingoophoroalysis in dense “frozen” pelvic disease due to endometriosis or infection

Gynecologic oncology: Hysterectomy (radical, extended), Lymphadenectomy (pelvic, para-aortic)

In our centre, the da Vinci robot had been available since October 2005. We have evaluated the role of the da Vinci robot particularly in multiple myomectomies as we saw the virtue in this type of surgery move readily compared to routine straightforward myomectomies or hysterectomies.

We performed 26 laparoscopic myomectomies and have not had to convert to a laparotomy. The range of some of myomatas removed was from < 1cm to 14cm. The mean operating time was much longer particularly due to the set up time which took an average of 38 minutes. The mean operating time was 5 hrs (3.5 to 7.5 hrs) as all the cases were of multiple myomectomies (from 6 to 28 fibroids) removed.



Once peritoneal access is obtained, a 12mm camera port (black) is placed at the umbilicus. Subsequently, two da Vinci ports (blue) are placed in the midclavicular line, 1-2 cm below the level of umbilicus lateral to the rectus muscle. Additional accessory ports (red) on the right side of patient is used for irrigation, placement, and removal of sutures.

The average hospitalization stay was three days as all of the surgeries were commenced in the evening of the first operative day. In terms of pain score, patient who underwent robot assisted surgery were as comfortable as with standard laparoscopic surgery but were requiring 90% less analgesic compared to the laparotomy.

There were 16 cases of laparoscopic hysterectomy done in women with severe adhesive disease, endometriosis and adenomyosis. The average operating time was 6.75 hours, average uterine weight

420 gms (250 – 983 gms) and hospital stay 3.5 days after procedures included appendicectomy, Burch colposuspension, enterocoele and paravaginal defect repair, extensive enterolysis, adhesiolysis, ureterolysis, excision of deep rectovaginal septum endometriosis. There was also one case of tubal reanastomosis.

The cost effectiveness of robotic surgery will have to be evaluated further. Large trials comparing the efficacy of robotics and traditional laparoscopy and laparotomy are needed to definitively determine its future role.

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AMH - The Ovarian Reserve Hormone

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Anti-Müllerian hormone (AMH) is a hormone that is produced by the ovarian follicle and measurable in the circulation. It was previously thought that AMH was only important in low core intrafollicular development but it is now known that AMH has an important role in the clinical management of patients undergoing ovulation induction, IVF treatment and management of PCOS.

AMH is the most sensitive measure of ovarian reserve and when combined with ovarian ultrasound and other hormones such as FSH and Inhibin, can give an important prediction of the ovarian reserve of the patient. This may allow the woman to make decisions about her reproduction, including having children earlier or storing eggs for future use. AMH is also the best predictor of the most appropriate dose for stimulation with FSH and can be used for avoiding ovarian hyper stimulation syndrome. In recent years we have discovered that AMH is an important diagnostic predictor of PCO in that it correlates very closely to antral follicles and may one day replace the use of ovarian ultrasound.

AMH is an important hormone to be added to the repertoire of clinics who are involved in reproductive predictions and of gonadotropin use. Its appropriate introduction into endocrine laboratories will reduce the risk of cancellation of ovulation induction and IVF cycles, of ovarian hyperstimulation syndrome and provide for a less invasive determination of polycystic ovaries. Its physiological effects are still being discovered but there may well be a potential for altering the effect of AMH and prolonging the number of ovarian follicles in the ovary.

Feast and Famine in Reproduction

The human reproductive system is exquisitely sensitive to the effects of nutrition and body weight. In times past famine has been much more common than it is now and the effect of under nutrition has been to reduce reproduction through the hypothalamic pituitary axis. In recent decades in the West and

increasingly in Asia, obesity and over nutrition is becoming very common and the effects of this on reproduction are equally strong. Natural fertility is reduced, miscarriage is increased and events in pregnancy that are increased include congenital abnormalities, preeclampsia, gestational diabetes, problems with delivery, deep vein thrombosis and infection. Perinatal mortality rates are substantially increased in women who are obese.

There is an increasingly recognised link between body fat and reproductive function with a number of adipocytokines produced by the fat that can affect ovarian and hypothalamic function. Chief among these are the hormones leptin, adiponectin, tumour necrosis factor alpha and interleukin-6. Understanding the basic physiology of the cross talk between fat and reproduction is essential for us to understand the effect of feast and famine on human reproduction.

Clinicians need to understand that the periconceptual environment is critically important for optimal health of any child conceived naturally or through IVF. Optimisation of nutrition and body weight is essential for good outcomes and clinicians are encouraged to make sure that they take an adequate history, give good advice to patients about optimising their chances of pregnancy and provide appropriate programs to help patients to achieve their goals.

PCOS - Current Concepts

Polycystic Ovary Syndrome is a common diagnosis, although there is controversy about the most important elements in its determination. In particular, the role of ovarian ultrasound and of serum testosterone levels is debated, leading to uncertain diagnosis and treatment. This lecture will be looking at some of the diagnostic criteria for PCOS and will introduce new elements into its diagnosis.

The origins of PCOS are controversial but may include intra uterine factors as well as obesity and the environment. Genetic components are clear but not

yet determined with respect to the particular genes or genetic components.

Treatment depends very much on the needs of the patient and in recent years there has been enormous controversy about the role of metformin in treatment

and the appropriate use of anti androgens. Current concepts suggest that metformin is less effective than clomiphene citrate, but laparoscopic ovarian drilling may be of more value than previously envisaged and that gonadotropin ovulation induction is as important as it used to be. The role of IVF in producing a single baby is also hotly debated.