

## *Editorial*

### The Abused Ovary



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Development of newer technology sometimes makes us overlook certain basic facts leading us to accept procedures and techniques which can result in grave consequences affecting the overall health of a patient. This is especially true as far as the ovary is concerned which has become one of the most abused organs in the glare of modern technology.

The ovaries are a pair of female gonads performing the most essential function as far as human reproduction is concerned i.e. the function of release of a mature fertilizable ovum by the process of ovulation. Apart from this, they are also responsible for secretion of the basic reproductive hormones viz estrogen and progesterone which are essential not only in reproduction but are also involved in a variety of metabolic processes thus maintaining the overall homeostasis of the individual.

Controlled ovarian hyperstimulation and

ovulation induction are an essential part of all assisted reproductive techniques. However ovulation induction protocols have been used haphazardly not only by gynecologists but even by general practitioners without proper monitoring and strict medical supervision. These protocols carry a potential of causing ovarian hyperstimulation syndrome which is severe, can be life threatening making intensive care and even multiple surgical procedures necessary for treatment of the same. Also the risk of ovarian carcinoma cannot be overlooked after unsupervised and long term use of agents like clomiphene citrate.

Various surgical procedures carried out on the ovary have a potential to cause more damage than benefit. Wedge resection of the ovary is one of the most classic examples of this. It has been advocated for patients of polycystic ovarian syndrome based on mechanisms like

- i) Drainage of follicular fluid containing high androgen concentrations resulting in acute reduction of intraovarian androgen levels.
- ii) Local reduction of ovarian androgen production may decrease the inhibitory effect of androgens on normal folliculogenesis.
- iii) Lowered reduction of ovarian androgens may result in diminished peripheral conversion androgens to estrogens with decreased positive feedback on LH production.
- iv) Secondary decrease of ovarian inhibin leading to a rise of FSH secretion resulting in normal LH/FSH ratio.

However, while none of these mechanisms have 100% proven benefit, a very significant complication resulting from this procedure is the development of

postoperative adhesions which hampers the future fertility of the patient tremendously. Studies using second look laparoscopy for analysis of these patients have shown the occurrence of dense periovarian adhesions and sometimes retroperitonization of the ovary at the site of these wedge resections.

More recently, patients with polycystic ovaries have been treated with various endoscopic procedures performed with either electrocautery which involves application of unipolar microcautery tip to penetrate the ovarian cortex or with the use of CO<sub>2</sub> laser focused on a high superpulse mode to incise the ovarian capsule in similar fashion. However these procedures carry a risk of inadvertent damage to the surrounding structures like bowel, ureter etc. Also the long term effects of tremendous thermal damage occurring to the ova during these procedures needs to be evaluated by careful randomized controlled studies before accepting these procedures as a standard therapy for treatment of PCOS. Incidence of adhesions and retroperitonisation of ovary also looms large.

One of the most controversial aspects in gynaecological practice has been the management of normal ovaries in hysterectomy. In the 19<sup>th</sup> century, removal of normal ovaries was done for some of the most inappropriate and unrelated indication like insanity and convulsive disorders. However as time passed and research continued, ovarian physiology became more clearly understood and thus began an era of ovarian conservation in the early 20<sup>th</sup> century. The debate between ovarian conservation and prophylactic removal of normal ovaries in pre and post menopausal women at the time of hysterectomy continues till date mainly on the basis of the difficulties in diagnosing and curing ovarian carcinomas in patients with residual ovaries.

Normal ovaries when conserved at the time of hysterectomy in premenopausal women continue their hormonal function in an unaltered fashion in almost all patients until the natural age of menopause. Evidence of continued ovulation in young patients after hysterectomy has been demonstrated by workers like Thompson & associates. Various studies have proven that the natural age of menopause in more than 90% of women is above the age of 50 years and women with bilateral oophorectomy between the ages of 40-45 years may lose 10 or more years of normal ovarian function leading to significant health hazards due to a sudden decline in estrogen and progesterone levels. These hormones influence the metabolism of proteins, calcium, bone, potassium, carbohydrates as well as lipoproteins and triglycerides. The absence of these can thus result in effects like osteoporosis, coronary artery disease,

cerebrovascular accidents and diabetes. The cardiovascular and cerebrovascular effects are mainly due to alteration in lipoprotein profiles especially HDL and LDL cholesterol. Although the desired effects on various organ systems can be achieved by estrogen replacement therapy with or without progesterone and androgens in women after bilateral salpingoophorectomy, such therapy may not always be tolerated well and is not completely without side effects. The risk of development of breast carcinomas, although controversial, still exists, so does the risk of development of hypertension and gall bladder disease.

The major risk of conservation of normal ovaries at the time of hysterectomy is the development of ovarian carcinoma, a truly devastating and life threatening condition. However the incidence of ovarian carcinoma as proven by various studies is less than 1%, thus leaving a major responsibility on the shoulders of the gynaecological surgeons, whether or not to advise that the continuation of hormonal function of the ovaries is of far greater importance than the risk of development of ovarian carcinomas after ovarian conservation during hysterectomy. Due to technical difficulties in removing ovaries by inexperienced surgeons, ovaries are conserved much more frequently during vaginal than abdominal hysterectomy even when oophorectomy is indicated thus making the route of surgery more important while taking a decision rather than the indication of surgery. This is true in spite of the fact that vaginal hysterectomy is performed more commonly in postmenopausal patients. It was felt by some gynaecological surgeons that the problem could be solved by conserving only one ovary at the time of hysterectomy thus feeling that the risk of cancer development would be reduced by 50%. However there is no statistical evidence to prove this, as retaining one ovary means to retain 100% malignant potential of both the ovaries. Thus prophylactic oophorectomy should be advocated in patients with absolute indications for the same like pre-menopausal patients with Peutz Jeghers syndrome, personal history of breast, colon or rectal carcinoma or strong family history of ovarian carcinoma. It is also advocated in patients who are menopausal or postmenopausal due to much lower level of estrogen production by these ovaries which makes it difficult to justify their conservation.

Considering the above facts, it is time for all gynaecologists to start considering the ovary as an essential part of the female body and not merely an organ which finishes its job after the reproductive life of a woman is over.

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