

The Ovaries at Abdominal Hysterectomy- Conservation or Removal?

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Opinion is still divided on the subject of prophylactic removal or conservation of the ovaries at hysterectomy for benign conditions in premenopausal women. There is incomplete presentation of arguments in favour of conservation of ovaries as opposed to the alleged benefits of prophylactic removal. Several facts need to be established.

Firstly, ovarian surgery during hysterectomy carries no risks.

Secondly, the ovaries should be removed at hysterectomy if the ovaries are hopelessly diseased even if the woman is young; and if the hysterectomy is done for malignant disease of the uterus, bilateral ovarian tumours or even a unilateral benign ovarian tumour in a woman aged 45 years and over (Grogan, 1967; Jeffcoate, 1972).

Thirdly, ovarian function continues after total hysterectomy (Barcroft - Livingston, 1954; Beavis et al, 1969; Grogan, 1967; Whitelaw, 1958), and even after the menopause (Meisels, 1966; Procope, 1968). Function has also been recorded in patients with congenital absence of the uterus (Brown et al, 1959). Following hysterectomy, normal ovulation and ovarian function occurs in 30.0 to 75.0 % patients (Beavis et al, 1969; Grogan, 1967; Whitelaw, 1958). Barcroft-Livingston (1954) recorded continuing ovarian function in 95.0% of patients after 3 years, and in 59.0% of patients after 5 years following hysterectomy.

Fourthly, Beavis et al (1969) established that two residual ovaries function more normally than

one in the older women. They showed conclusively that normal ovulation occurred in 75.0% of patients with both ovaries conserved and in 27.0% of patients with one ovary conserved and that abnormal ovulation occurred in 10.0% and in over 20% of patients respectively. This observation implies therefore that one should either remove both ovaries or leave both behind at hysterectomy.

ARGUMENTS FOR CONSERVATION

Bonney in 1937 stated "except in malignant disease, preserve the feminine sex glands intact - leave in her body the full amount of undiseased ovarian tissue that she possesses".

1. Continuing Ovarian Function following Hysterectomy

Available evidences indicate that normal ovarian tissue conserved at hysterectomy continues to function normally. This is evidenced by way of vaginal cytology (Barcroft - Livingston, 1954); urinary hormonal studies (Beavis et al, 1969); basal body temperature charting (Whitelaw, 1958); and observations at subsequent laparotomy (Grogan, 1967). There is no evidence to show that the ovaries cease to function immediately following hysterectomy (Jeffcoate, 1972). There is therefore no reason to remove normal ovaries at hysterectomy in the pre-menopausal woman.

2. *Post-menopausal symptoms following ovarian removal in pre-menopausal women*

These symptoms result from vasomotor instability with a tendency to flush or blush and are present in 6.0% of patients without operation, in about 50.0% of patients with hysterectomy and unilateral salpingo-oophorectomy, and in about 25.0 to 30.0% of patients with hysterectomy and bilateral salpingo-oophorectomy (de Neef and Hollenbeck, 1966; Richards, 1951; Sessums and Murphy, 1932).

Contrary to the above reports, Jeffcoate (1972) commented that the incidence of severe menopausal symptoms can be lowered from 50.0 to 1.5% if one ovary is conserved at hysterectomy.

It is argued, therefore, that simultaneous ovarian removal at hysterectomy in pre-menopausal women results in a high incidence of post-menopausal symptoms.

3. *Risk of osteoporosis in pre-menopausal women*

The incidence of osteoporosis increases with age especially in women. Nordin et al (1966) noted that osteoporosis occurs in 10.0 to 20.0% of menopausal women. Their observations were based upon the evaluation of 3 indices; the metacarpal index, the femoral index and the lumbar vertebral body biconcavity index, all of which are noticed to fall with advancing age.

The increased incidence of osteoporosis in menopausal women is related to oestrogen deficiency (Nordin et al, 1966). This probably works through the regulation of calcium absorption or excretion rather than a direct effect on bone matrix. The decrease in hormonal stimulus of osteogenesis in addition to the decrease in activity in old age leads to decreased bone formation, which in the presence of normal bone resorptive activity leads to osteoporosis.

Evidences clearly show that ovarian hormonal function before the menopause protects against the onset of osteoporosis (Nordin et al, 1966), and therefore preservation of ovarian function until the age of the natural menopause is desirable.

4. *Risk of atherosclerosis and premature coronary artery disease*

Atherosclerotic heart disease is commoner in males than in premenopausal women but the difference becomes less marked near menopause. After

menopause, the incidence in females gradually exceeds that in males.

There is an increased incidence of clinical coronary artery disease in ovariectomised females over controls (Oliver and Boyd, 1959; Robinson et al, 1959). Positive long-term therapeutic effects have been reported in males with coronary artery disease when treated with oestrogens (Marmorston, 1962; Oliver and Boyd, 1961; Stamler et al, 1959).

There is no question on the ability of oestrogens in reducing total serum cholesterol, increasing alpha-lipoprotein and lowering or maintaining the cholesterol-phospholipid ratio. All these biochemical changes are desirable in achieving primary and secondary prevention of coronary artery disease (Berkson et al, 1964).

The great weight of evidence at present therefore suggests that endogenous oestrogen secretion significantly protects the pre-menopausal woman from the on slaught of premature coronary artery disease and therefore conservation of ovarian function in such women is desirable.

ARGUMENTS FOR REMOVAL

1. *Fear of Malignancy in residual ovaries*

This is the main argument for the prophylactic removal of normal ovaries at hysterectomy. No method for early detection of ovarian cancer is available and chances of eradication are slim once the tumour is advanced (Grogan, 1967).

Jeffcoate (1972) quotes a risk of malignancy in residual ovaries, of one in 300 to 3000 hysterectomies compared to reports of higher risks of 3.6% to 8.2% (Counsellor et al, 1955; Grogan, 1967; Pemberton, 1940; Randall, 1962; Thorp, 1950). The latter authors also commented that of the cases of cancer in residual ovaries, about 40 to 50% were less than 40 years of age at time of hysterectomy while 50 to 60% were 40 years and over. Therefore, younger women are equally liable to develop malignancy in residual ovaries.

The reality of this potential problem favours the prophylactic removal of ovaries at hysterectomy even in pre-menopausal women but one must admit that the calculated risk of malignancy in residual ovaries is probably small.

2. *Development of Benign Tumours in residual ovaries*

This risk varies from 3.4 to 13.7% (Beavis et al, 1969; de Neef and Hollenbeck, 1966; Grogan, 1967); the principal benign tumours being mucinous and serous cystadenomas and "endometriomas". All these necessitated removal surgically and it is felt that such a procedure would have been unnecessary if prophylactic removal of the ovaries at hysterectomy had been carried out. Therefore, the possibility that benign ovarian pathology may develop in residual ovaries following hysterectomy has been used as an argument against conservation (Grogan, 1967). This risk is however of minor significance.

3. *"Residual Ovary Syndrome"*

Grogan (1967) listed this clinical entity as one of the principal indications for surgical intervention in residual ovaries. The main features include pelvic pain (47.8%), pelvic mass (26.0%), pain and mass (21.7%) and dyspareunia (4.2%). The cause of pain was related to a combination of continued or abortive attempts at ovarian function, ovarian dysfunction secondary to perioophoritis or adhesions and/or ovarian endometriosis. None of these are, however, life threatening and it appears that Grogan (1967) has overemphasised this clinical syndrome in his enthusiasm for prophylactic removal of ovaries at hysterectomy.

4. *Ovarian Dysfunction in residual ovaries*

The occurrence of this, is as high as 47.0% (Grogan, 1967) and is evidenced by the finding of cystic, atretic and hemorrhagic follicles in residual ovaries at subsequent laparotomy. It is suggested that ovarian dysfunction might predispose to the risks of malignancy and to the development of the "residual ovary syndrome", both conditions necessitating surgical intervention at same stage. These associations are however not supported by conclusive evidence and the problem of ovarian dysfunction in residual ovaries would appear to be of minor significance at the present experience.

5. *Endometriosis in residual ovaries*

The incidence of endometriosis in residual ovaries is 10.0% (Grogan, 1967) compared to about 3-4% in the general population (Jeffcoate, 1972). Continued function leads to pain which can be controlled by hormonal treatment, failing which surgical intervention would be necessary.

CONCLUSION

It is evident that the disadvantages of ovarian removal at hysterectomy in pre-menopausal women outweighs the advantages. The calculated risks for malignancy is still admittedly small and justification for prophylactic removal of ovaries on this basis alone is not recommended. The dangers of future atherosclerotic disease, premature onset of coronary artery disease and osteoporosis in pre-menopausal women following ovarian removal appear greater than the threat of future malignancy and the other less significant conditions in residual ovaries. The finding that ovaries which are functioning normally before hysterectomy continue to function normally after hysterectomy adds further weight to the policy of ovarian conservation during hysterectomy.

It is an inevitable conclusion that routine bilateral oophorectomy should not be done at the time of total hysterectomy in a pre-menopausal woman unless a definite indication exists.

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