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Ovariectomy for menstrual madness and premenstrual syndrome – 19th Century history and lessons for current practice.

J. Studd, DSc, MD FRCOG

Chelsea and Westminster Hospital, London SW10 9NH

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On Boxing Day 1851 Charles Dickens attended the Patient's Christmas Dance at St Luke's Hospital for the Insane. On describing his visit in *Household Words* he commented that the experience of the asylum proved that insanity was more prevalent among women than men. Of the 18,759 inmates over the century, 11,162 had been women. He adds, "It is well known that female servants are more frequently affected by lunacy than any other class of persons". (1) Dickens was a great observer and indeed the passage is one of the few references in Victorian literature that makes the link between gender and depression together with a link to poverty but there are none relating reproductive function to depression. Jane Eyre's 'red room' and Bertha Mason's monthly madness discussed in the same novel may be coded examples of this from Charlotte Bronte's pen (2) as such intimate references would not pass the powerful censorship of publishers and lending libraries.

During the 19th century it was well recognised and sincerely believed that

women were intellectually inferior to men and should not be educated. This view was so pervasive that many female writers like the Brontës and Mary Ann Evans had to write their great novels under the male pseudonyms of Acton Bell, Currer Bell and George Eliot. Even Lawson Tait, a (fig 1) gynaecologist of enormous intellectual and surgical ability supported this view, suggesting that, "young girls should not play music or read serious books because it makes much mischief with their menstrual cycle and the intellect".(3) This view was compounded by Edward Clark of Harvard and Sir Henry Maudsley of London (fig 2) in his infamous article *Sex in Mind and Education* in 1874 believing that, "with one week of the month more or less sick and unfit for hard work", she was intellectually handicapped, "when nature spends in one direction [i.e. periods], she must economise in another". In general terms, "she does not easily regain the vital energy that was recklessly spent on learning... if a woman attempts to achieve the educational standards of men... she will lack the energy necessary for childbearing and rearing". (4)



Figure 1: Lawson Tait

This article had a profound effect upon attitudes to education in women and indeed Maudsley's ideas were instrumental in preventing women being admitted as medical students. He changed his mind later in his long life but the damage was done.

There was also a widely held medical view that young women suffered from neurasthenia, hysteria, menstrual madness



Figure 2: Sir Henry Maudsley

and lunacy as a result of masturbation and nymphomania. Neurasthenia was a commonplace problem where women went "off their feet", or "living a sofa existence", with Elizabeth Barrett Browning and Florence Nightingale in later life being notable examples of this disorder which would be the 19th century equivalent of chronic fatigue syndrome. Maudsley did recognise the association of physical and



emotional symptoms with the women's cycles and with great prescience noted the association of behavioural changes with ovarian cycles, "the monthly activity of the ovaries which marks the advent of puberty in women has a notable effect upon the mind and body wherefore it may become an important cause of mental and physical derangement". (4) Thus it was clear that the cyclical symptoms of insanity or menstrual madness were believed to be due to ovarian function rather than menstruation. This is well reviewed by Dalley. (5) But there was a treatment which took the form of removal of ovaries. In fact the early surgeons were surprised when removal of the ovaries led to amenorrhoea.

Ovariectomy for larger ovarian cysts was in the mid-19th century being performed by a number of skilled gynaecologists, following the pioneering operation in 1809 by Ephraim McDowell of Nashville, Kentucky who removed a large tumour before the days of anaesthesia from Jane

Crawford who famously recited psalms while the surgery was taking place. Ovariectomy became the measure of a surgeon's ability at a time when most advances in abdominal surgery were performed in women with gynaecological disorders. These disorders were both real and imaginary. At least general anaesthesia by ether or chloroform was available from 1846.

It was not until 1872 that normal Ovariectomy i.e. removal of normal ovaries was performed for a disorder or malady which was not gynaecological.(5) The first surgeon to perform this was Alfred Hegar of Freiberg (fig 3) to be followed seven days later by Lawson Tait of Birmingham and Robert Battey (fig4) of Georgia, U.S.A. At the latter's insistence, it became known as Battey's Operation (6) but in Britain, 'Tait's Operation' was used, particularly by his enemies.



Figure 3: Alfred Hegar



Figure 4: Robert Battey

Battey believed that insanity was, "not infrequently caused by uterine and ovarian disease". He describes how he had a southern girl, of more than unusual beauty, as a patient with cyclical vomiting and hysteria. He wanted to remove the ovaries but following discussion at the Southern Medical Society he was unable to find a precedent. He did not perform the surgery and the patient died with him resolving to

be less cautious when this clinical problem next came to him. The opportunity came with the 23 year old Julia Omberg who had menstrual epilepsy with bouts of rectal bleeding. He operated and in his much-publicised report claimed that he didn't leave her room for 10 days until she recovered. Although Battey claimed only to perform the operation 15 times from 1872 to 1888, it did become very popular



throughout much of Europe and the United States with patients having normal ovaries removed for menstrual madness, oophoromania, hysterical vomiting, epilepsy, and dysmenorrhoea and of course those great Victorian disorders of nymphomania and masturbation. Leeches had been applied to the lower abdomen, vulva and anus for these symptoms for decades but from 1880 this treatment had given way to removal of ovaries, in order to prevent insanity and moral decline.

The results were apparently so successful that it was soon performed for “all cases of lunacy” and young surgeons would be given an annexe of a psychiatric hospital where they would remove ovaries from the inmates. Of course there was controversy concerning Battey’s Operation. It was regarded as, “one of the unequalled triumphs of surgery” and those denying such treatment were, “wanting in humanity,” and “guilty of criminal neglect of patients”. This view was supported by the most illustrious surgeons of the time such as Sims, Lawson Tait and Spencer Wells. Those opposing the spaying and desexing of “this pernicious and dreadful operation”, performed by, “gynaecological perverts”, have been largely forgotten by history.

There is even an example of a sham operation by James Israel of Paris (1880) (7) who cured a patient by making an incision and merely sewing it up, reporting it widely in the literature. Unfortunately Hegar claimed that he saw the same patient a year later, and cured the patient of her incessant vomiting by removing the ovaries. He protested that well-meaning criticism had put German gynaecology 20 years behind the progress made in Britain and that never again “must we German doctors allow somebody to be taken from our hands and be exploited by foreigners” (8). This does underline the perceived importance of this new technique both in the level of surgical advances and treatment of psychiatric/gynaecological conditions. There was great national pride involved in the developments, equivalent to the current pursuits of research into stem cells or diagnostic ultrasound. It was literally the

cutting edge of medical progress even though it was a misguided development.

It has been estimated from questionable data that 105,000 women had this unnecessary operation performed at a time when mortality would range between 10 and 25% (5). No doubt it would have continued but for a blistering JAAMA editorial which criticised the operation as being inhumane and not justifiable under any circumstance, and created a reappraisal.(9)

Longo (1979) in his review of the ‘Rise and Fall of Battey’s Operation: a Fashion in Surgery’ (10) clearly concluded that the enthusiasm for the operation was a mistake but it did produce certain benefits such as an improved understanding of pelvic pathology and reproductive physiology. It also improved surgical techniques. History does repeat itself and each generation of surgeons, in this case gynaecologists, have had a fashionable operation which taught the trainee surgeon how to open and close abdomens although in retrospect it can be seen that the operations were either useless or superseded by a better method. This would include ventrosuspension of the uterus for all forms of infertility, tubal surgery, pre-laparoscopic sterilisation and even the current high incidence of caesarean section. Battey’s Operation was merely first in this line of surgical teaching opportunities for gynaecologists.

The most important question posed by Longo was whether the operation worked. If we regard menstrual madness as severe pre-menstrual syndrome (PMDD) and ovarian ablation by GnRH analogues as a medical castration equivalent to oophorectomy then there is ample evidence that removing the ovarian cycle in this way will improve all of the symptom groups of severe PMS. The 19th century surgeons had no concept of menopausal symptoms or osteoporosis so ultimately this operation would be followed by severe medical problems but it would have had the desired affect of curing cyclical monthly symptoms if the surgeon had been selective in his patients. Unfortunately misplaced over-



enthusiasm for the surgery removed any sense of good clinical judgement and great harm was done.

Several studies have shown an improvement in PMS by the suppression of ovulation by a "medical ovariectomy" Watts et al (11) using Danazol and both Hammarback and Backstrom (12) using LRH-agonist and Hussain et al using Buserilin (13) found the therapy to be better than placebo Leather et al.(14) also used a GnRH analogue (Zoladex) to ablate ovarian cycles and PMS symptoms. It was effective against every Moos cluster of symptoms. The inevitable menopausal symptoms and demineralisation of bone was prevented by 'add-back', oestradiol and progestogen.(15) PMS symptoms recurred with the progestogen component of the 'add-back', an observation first made by Magos et al (16) in hysterectomised patients receiving cyclical progestogen. This study was a model for the aetiology of PMS as it is this progesterone //progestogen intolerance (17) which is the essential cause of the premenstrual symptoms. The Magos study also explains the efficacy of the 19th century ovariectomy and the 20th century hormonal suppression of ovulation in carefully selected patients as it removes the cyclical production of endogenous progesterone.

But the successful control of PMS symptoms by abolition of luteal phase progesterone further questions the fashionable but unproven therapy by progesterone usually in the form of vaginal pessary for this condition. Such therapy would be based on the opposite hypothesis that a deficiency of progesterone, or its metabolites are essentially the cause of this condition rather the view that progesterone intolerance is the aetiological factor.

Current therapy for severe PMS is varied, being psychiatric, cognitive or hormonal. But the cornerstone of hormonal treatment relies upon suppression of ovulation and removal of the hormonal changes, whatever they are, that follow ovulation in the luteal phase. For example when are there no cyclical hormonal

changes during pregnancy; not only are there no cyclical mood symptoms but depression is uncommon to be followed by a greater instance of depression post-partum when there is a fall of levels of placental or ovarian hormones, with the recurrence of cyclical PMS when the periods return. There are now adequate placebo controlled studies showing that suppression of ovulation by increasing plasma estradiol levels by transdermal estradiol as well as down regulation with analogue results in an improvement in severe pre-menstrual syndrome.

Magos (18) first used oestradiol implants 100mg every 6 months a dose known to suppress ovarian activity and produce plasma estradiol levels of approx 800 p.mols/L and found that every PMS symptom cluster was improved when compared with placebo. Oestradiol implants are not appropriate for young women who may wish later to become pregnant, so moderately high dose oestradiol (200mcg) was given by percutaneous patch and studied in a crossover trial which again showed the benefit of suppression of ovulation compared with placebo. (19)

It is necessary to prevent endometrial hyperplasia with progestogen usually in the form of cyclical oral therapy for 14 days each month. But as PMS patients are progestogen intolerant the troubles and symptoms may recur with this duration so it is recommended that shorter courses are used. The original Sturdee paper (20) showed that 7 days of progestogen also prevented endometrial hyperplasia. The standard regimen from this clinic is to prescribe a progestogen for the first 7 days of each calendar month and she will have a withdrawal bleed on about the tenth day of the month. Failing this the problem is often solved by insertion of intrauterine progestogen in the form of a Marina IUS which protects the endometrium and avoids the need for oral progestogens.

In spite of this there are still patients whose cycles are not totally suppressed with high dose oestrogens and who still have their own endogenous cycles or iatrogenic progestogenic cycles. These



patients can usually be cured by the addition of a GnRH preparation or the ultimate Battey's Operation, namely hysterectomy and bilateral salpingo-oophorectomy. (TAH/BSO)

Although TAH/BSO is a common operation for many indications there are very few data concerning severe PMS . Casson et al (21) found it to be effective in 14 patients for physical and psychological symptoms as well as having a favourable effect on lifestyle, after first suppressing ovarian steroidogenesis with danazol. Casper and Hearn (22) also showed a dramatic improvement in mood, general affect, wellbeing, life satisfaction and quality of life another small study of 14 women.

Cronje et al (23) published the results of 49 such women collected over 10 years from 2 busy PMS clinics, with all but one being symptom free and enthusiastic about the treatment. Such surgery is rarely required but effective however it is significant that some disapproving correspondence following this publication referred to the 19th century scandal of Battey's Operation. All but one of these women had tried various ineffective medical treatments for a mean of 3.6 years before referral to the specialist PMS clinic where they were treated by anovulatory doses of estradiol patches or implants for a mean of three years before problems with bleeding or progestogen intolerance made surgical treatment necessary. One patient, the one

who refused any medical therapy, regretted the operation but all others were very satisfied with a complete resolution of symptoms.

The importance of ovarian function in the causation and treatment of PMS should be a factor for discussion with a patient concerning prophylactic oophorectomy at the time of consenting for hysterectomy. (24). Conservation of ovaries does not cure the symptoms of PMS for the patient will still have cyclical symptoms of depression, irritability, irrational behaviour etc. as well as cyclical headaches that may be the equivalent of menstrual migraine before surgery. The psycho-protective value of oestrogens compared with progesterone can be seen in the beneficial response of women with post natal depression and perimenopausal depression, the other components of "reproductive depression". (25 26)

A study of the history of medicine enables us to learn from the mistakes of the past and to understand that the fashionable treatment embraced with enthusiasm in the past may now be seen as a hideous mistake .So may it be with many current therapies. With this historical knowledge we can question the accepted wisdom of the day and also recognise that today's medical heresy may become the accepted treatment of tomorrow. It is easy to be wrong. Remember that our ancestors used to bleed for anaemia.



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