The Journal of
OBSTETRICS AND GYNECOLOGY of India

J Obstet Gynecol India Vol. 60, No. 2 : March / April 2010 pg 121-122

Milestones

Irving Stein, Michael Leventhal and a slice of endocrine history

Dastur Adi E[1], Tank P D[2]

Honorary Professor Emeritus and Dean, Seth G S Medical College and Nowrosjee Wadia Maternity Hospital, Mumbai, India
Honorary Clinical Associate, Nowrosjee Wadia Maternity Hospital, Mumbai, India

The ovary has been an organ of scientific curiosity and clinical mystery since time immemorial. With the discovery of its endocrine function, gynecologists directed renewed attention to it in seeking therapies for women's afflictions. Numerous therapeutic measures from galvanism to castration were empirically prescribed, to combat a great variety of ailments ranging from insomnia to narcolepsy and from frigidity to nymphomania. As abdominal surgery rapidly developed, the ovary fell easy prey to the intrepid and enterprising gynecologist, who explored, biopsied, needled, resected, transected, excised, suspended and transplanted the organ for all sorts of indications, limited only by his zeal and ingenuity and the patient's submissiveness. [1] It was a fortuitous observation of a pair of gynecologists from this era that a syndrome was born.

Irving Freiler Stein (Figure 1) was born in Chicago in 1887. He received his qualifications from the Rush Medical College in 1912. After completing an intern-

Figure 1. Irving Freiler Stein (1887 – 1976).

Figure 2. Michael Leo Leventhal (1901-1971).

ship at the Michael Reese Hospital in Chicago, he joined the department of Obstetrics and Gynecology in which he stayed for the rest of his career. He rose to the rank of senior attending and was also an associate professor emeritus at the Northwestern University. He served as president of the American Society for Study of Sterility. He died in 1976, at the age of 89. His colleague, Michael Leo Leventhal (Figure 2), born in 1901, had a remarkably similar educational background having qualified from the same institutions. They worked together at the Michael Reese Hospital, which Leventhal joined in 1926. He served in the US Army in the Second World War. This created a break in his clinical practice and academic career. Though both Stein and Leventhal continued to work together for a number of years after this, most of the academic work was published by Stein.

Even in the 1920s it was well recognized that obese women suffered from amenorrhea, menstrual irregularity and that hirsute women are often infertile. When Stein and Leventhal surgically explored these women, they observed that the ovaries were enlarged to two to four times their original size and full of tiny fluid filled cysts. Some of the ovaries were flat and they called them "oyster ovaries" due to their shape and grayish color. A description of ovaries with sago-like grains or a polycystic appearance was put forth in the earliest descriptions. When they correlated the clinical characteristics, they wrote in their landmark paper in 1935: "The breasts were usually normal. In some patients, there was a distinct tendency toward masculinizing changes. A typical rhomboid hairy escutcheon, hair on the face, arms and legs and coarse skin was noted. No voice changes were observed. The external genitalia were normal, but in some, the labia minora was markedly hypertrophied. Libido is apparently no affected by the changes noted in the ovaries." [2] To discover more about the ovarian pathology, Stein and Leventhal biopsied the ovaries by taking out wedges of ovarian tissue. Pathological examination did not yield much, but much to their surprise, women began menstruating regularly after three to five months. One of their first patients became pregnant within the first year of the operation after a long period of married life. This set the wheels in motion for a detailed analysis of the preoperative characteristics, operative findings and surgical procedures in each of the cases and it was concluded that the act of taking the biopsy was indeed therapeutic. They did recognize the limitations of the preoperative diagnosis and would often have to deal with other ovarian enlargements at laparotomy.

Stein and Leventhal relied chiefly on history and clinical characteristics to select patients for laparotomies and ovarian biopsies. But they also emphasized the need to preoperatively confirm the diagnosis before embarking on the surgical intervention. With the limited technology available, they did a gynecography to investigate these women. Gynecography involves a X-ray procedure that evaluate the female genital tract and ovaries by using gas insuffulation. The alternatives were direct visualization by culdoscopy or culdotomy which were unsuitable because they were more invasive and these women were often nulliparous or not married. Stein elucidated the surgical procedure for wedge resection in subsequent publications. [3] There was an emphasis on ovarian decompression, normalizing the ovarian size and apposing the ovarian surface with fine sutures to achieve hemostasis. They also stated that other procedures such as suspensions should be avoided to minimize the risk of infection and adhesions.

It should be noted that even with their pioneering work and leading position in the field, the syndrome was named after them after a number of years of the first description. They were also cautious about selecting women for surgical therapy. This is clearly illustrated by the fact that over a twenty year period, they performed only 96 such procedures. Sixty three of the 71 women who were keen to have children subsequently did conceive. Only three patients failed to menstruate of which one had received radiotherapy as a treatment of amenorrhea. The authors had a long follow up of most of these patients and noted that the surgical therapy was not limited by the passage of time. The polycystic ovary syndrome, though no longer popularly called by the eponymous name of Stein-Leventhal syndrome, will always owe a lot of its progress to these gynecologists.

References

1. Speert H. Irving Stein, Michael Leventhal, and the Stein-Leventhal Syndrome. In: Obstetric and Gynaecologic Milestones. Essays in Eponymy; pp 419 – 23. The Macmillan Company, New York, 1958.
2. Stein IF, Leventhal ML. Amenorrhoea associated with bilateral polycstic ovaries. AJOG 1935; 29:181-91.
3. Stein IF. The Stein-Leventhal Syndrome. Clinical Obstetrics and Gynecology 1958; 2:207-17.