Gynecologic Oncology 149 (2018) 447–454

Contents lists available at ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno

Historical Perspective

Meigs to modern times: The evolution of debulking surgery in advanced ovarian cancer

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HIGHLIGHTS

- Meigs' original surgical approach to ovarian cancer is described.
- Evolution of the presumed benefits for debulking are discussed.
- Modern refinements of surgical indications and techniques are examined.

ARTICLE INFO

Article history:
Received 18 December 2017
Received in revised form 26 February 2018
Accepted 1 March 2018
Available online 7 March 2018

Keywords:
Primary debulking
Cytoreductive surgery
Ovarian cancer

ABSTRACT

Joe V. Meigs was a visionary clinician and an early adopter of radical techniques in the surgical treatment of ovarian cancer. His 1934 textbook "Tumors of the Female Pelvic Organs", consolidated his approach to this "hopeless" disease, with pearls on diagnosis, outcomes, and even speculations about the benefits of minimally invasive surgery. Decades before adjuvant chemotherapy would prove of value, and in an era when sophisticated statistics were unheard of, he nonetheless tried to eke out what benefits he could using the methods available in his time. We transition his original findings and observations through the advent of platinum-based chemotherapy, retrospective cohort studies supporting the benefits of primary debulking, and finally the long-awaited randomized controlled trial. We aim to provide historical context for the underpinnings of how cytoreductive surgery has evolved into its current role in the treatment of advanced ovarian cancer.

1. Introduction

Joe V. Meigs (Fig. 1) of Boston is widely credited with the original description of the surgical approach to ovarian cancer in his 1934 landmark treatise "Tumors of the Female Pelvic Organs" (Fig. 2) [1]. Growing up in nearby Lowell, Meigs had graduated from Harvard Medical School before his formal general surgical training at Massachusetts General Hospital (to which he was connected for the rest of his professional life). He subsequently served for one year as an assistant to William P. Graves, surgeon-in-chief at the Free Hospital for Women, consultant at the Boston Lying-In (both forerunners of today's Brigham & Women's Hospital), and author of the illustrated masterpiece "Gynecology" [2]. Meigs' storied career would be focused on gynecologic cancer, including malignant tumors of the ovary, despite his early observation that "the outlook for patients with this disease is hopeless" [3]. Three chapters of his original textbook plumb the known depths of ovarian cancer, accompanied by a case cohort accrued at his institution from 1901 to 1923. He described a consecutive series of 67 women diagnosed with "solid carcinomas" and "malignant papillary cystadenomas" – curiously stratifying histologically similar ovarian cancer by gross features – to observe that such patients often have "no symptoms until it is well advanced" and that, at laparotomy, serous tumors not infrequently had a "peritoneum that was completely studded with implantations". In an era well before even rudimentary attempts at chemotherapy had been developed, he deduced that "surgical removal is certainly extremely important", while the effects of "X-ray treatment" appeared mixed [1]. From these earliest speculations of the benefits of primary debulking via laparotomy, 35 years before the founding of the Society of Gynecologic Oncology (SGO), remarkable progress has been made to refine the role of surgery in the modern management of advanced ovarian cancer.

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https://doi.org/10.1016/j.ygyno.2018.03.001
0090-8258/

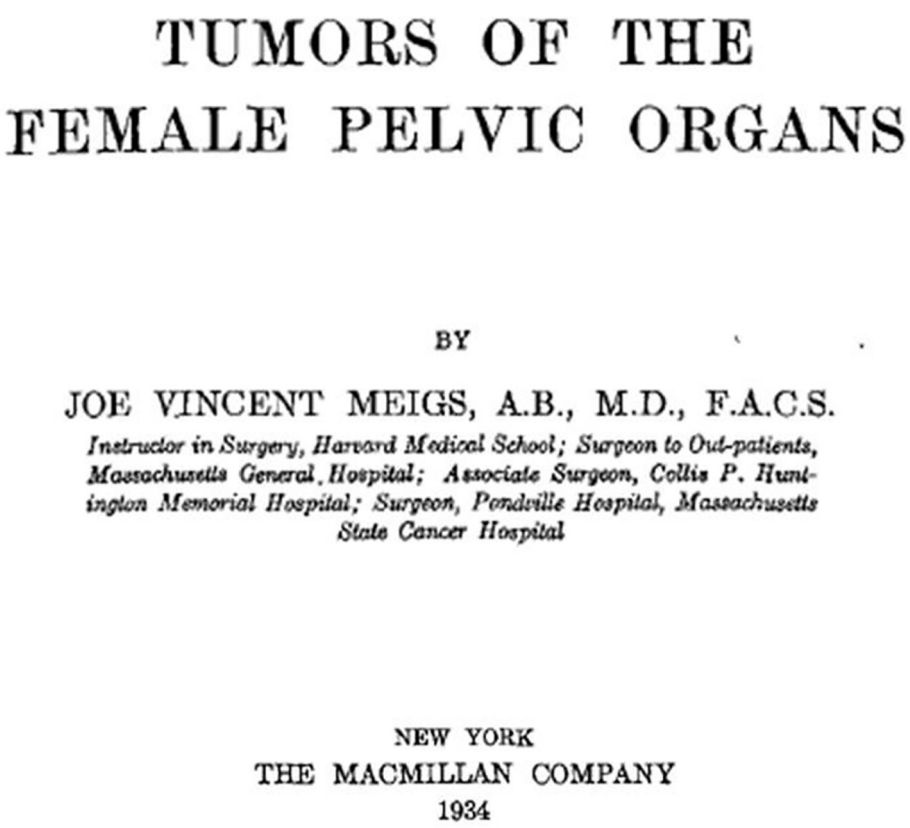
Fig. 1. Joe V. Meigs.

2. Meigs' principles and their impact

Meigs subsequently "brought up" his series of cases to 1934 "in the hope that a greater interest could be stimulated in earlier and more radical treatment". His updated five-year survival rate of 147 patients was a dismal 16%. One of the clinical conundrums of the time, well before computed tomography, diagnostic paracentesis or tumor markers, was how to best confirm the presence of the disease. His view was that "the required treatment of all groups is operative, as an accurate diagnosis cannot be made without surgery", and further that it "should be advised early and insisted upon". Presciently, he suggested that "the peritoneoscope should prove of inestimable value", yet cautioned that "it [only] be used by one accustomed to the instrument, and great care exercised not to perforate the growth. Just as the colposcope, the cystoscope and proctoscope are of enormous value, so eventually may the peritoneoscope become" [3].

Once diagnosed, "treatment should consist of radical surgery. Whenever possible, both the ovaries, the uterus and the cervix should be removed." Exploration may identify other sites, and "if the omental cake can be removed successfully and easily, it too should be removed". Meigs summarized his approach as follows: "a good rule in cases of ovarian cancer is to remove as much tumor tissue as is possible, if the patient's condition permits". Unfortunately, about 20% in his early series were wholly inoperable, "the patients [being] simply explored, a biopsy taken and the incision closed". The overall operative mortality ranged only from 5 to 10%, "low" by historical standards and especially when considering that many "of these patients were in poor condition". He concluded that his thorough review "presents a gloomy picture, but a correct one" [3]. His honest appraisal certainly left plenty of room for improvement, so he got down to the business of further work on the topic.

Meigs next reported out a more contemporary series of 67 patients who underwent primary surgery from 1935 to 1943. Eight (12%)



TUMORS OF THE
FEMALE PELVIC ORGANS

BY

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NEW YORK
THE MACMILLAN COMPANY
1934

Fig. 2. Inside cover page of Meig's original textbook.