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Perspectives and Commentaries

Still Less Extensive Surgery for Breast Cancer

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IN THE *European Journal of Cancer & Clinical Oncology*, Umberto Veronesi published what he cautiously calls 'long term' results of his already well-known Q.U.A.R.T. versus Halsted study [1]. I, among many others, find those results to be highly significant and definitive. One must now pose the question: where do we go from here? It is perhaps important to remember where we come from. One century ago Halsted described his radical mastectomy (1894), the perfect surgical answer to what was known of breast cancer at that time: an aggressive form of tumor progressing centrifugally mostly along known lymphatic pathways.

The generalization of this radical surgical practice resulted in a spectacular increase in cure rate and a decrease in local recurrences [2].

The answer to the remaining failures was 'more is better' until the early sixties.

As young surgeons, we were disappointed by the results of one of the first large international randomized trials comparing the standard Halsted procedure to the en-bloc superradical mastectomy including the internal mammary nodes. No improvement was noted, the limited advantage of the largest procedure in a small subset of patients was negatively compensated by increased morbidity and mortality [3].

As young oncologists, we began to learn even more. Cancer of the breast was no longer considered a malignant process with a predictable behavior.

The most important lesson was the knowledge that the metastatic process starts very early and remains mute for a variable and possibly very long period of time. Immunological factors were suspected to be more influential in the course of the disease than mechanical, traumatic or circulatory circumstances.

Furthermore, for unknown reasons, some tumors are obviously more aggressive than others, and generalization of the diseases does not follow any predictible pattern, neither in time nor in spread.

In parallel with the development of modern surgery, Roentgen discovered the X-rays in 1895 and one year later the first attempts were made to use them for the cure of breast cancer with cathode tubes and by radium implants after their discovery by Maria Sklodowska-Curie in 1898. Baclesse in 1937 obtained the first consistently good results with orthovoltage therapy [4]. Clinical and cosmetic results made decisive progress with the advent of supervoltage techniques. The French successors of Baclesse, Calle, Pierquin, Amalric, were soon joined by Americans such as Fletcher, Harris and Hellman [5, 6].

The period of fierce rivalry between the surgeon and the radiotherapist is over and there is at least one more contender for the final victory, the medical oncologist.

Surgery and radiotherapy are both local treatments, each with their own possibilities and limits. If they are used in combination, they must be complementary. The simple addition of radical surgery and radical radiotherapy does not improve the end results, it just accumulates and aggravates the morbidity of both.

At the time a local treatment is undertaken, it will cure the patient if all local foci of tumor are definitely eradicated and if no distant metastases exist or are allowed to develop later. This last condition, although of paramount importance, will not be taken into consideration in this paper.

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Let us examine the conditions that a local treatment must fulfil to be curative, alone or with adjuvant systemic therapy.

There are points of unanimous agreement and others which are still controversial even after meetings of experts such as the Boston Meeting in May, 1982, and the Milan Seminar of April, 1986.

The Milan trial reported in this issue demonstrates that total mastectomy can be substituted by lesser surgery supplemented by adequate radiotherapy.

Local failures after partial breast removal are due to inadequate irradiation as in the early British trials by Hayward in 1961 and Van Slooten in the Netherlands [7]. The N.S.B.A.P. study of Fisher demonstrates even further the unacceptable consequences of partial surgery without post-operative radiation. So there is a consensus on the fact that when a diagnosis of breast cancer is made, the whole breast must be removed, or if lesser surgery is performed, the remaining homo-lateral breast must be adequately radiated [8]. Veronesi's demonstration concerns only T1No tumors treated by quadrantectomy, a limited but still quite radical excision and includes a complete axillary dissection.

The main purpose of partial breast conservation is cosmetic. In sizable breasts, tumors of more than 2 cm in diameter can still be removed with good cosmetic results, so there is a tendency to broaden conservative surgery to at least 'small' T2 lesions.

In the Milan trial, an expected percentage of No cases proved to have pathologically involved axillary nodes. They were treated accordingly and fared at least as well, in fact better, than the radically operated women.

It thus seems that N1 cases may be safely considered for conservative surgical management. The main result of this study is a further reduction of the surgical excision. It seems difficult to obtain good esthetic results if large clean margins are mandatory. There is a clear tendency, but not a consensus, among surgical experts, to accept macroscopic and preferably microscopic clear margin as necessary and sufficient conditions [8]. There is a consensus to exclude large tumors in small breasts, very infiltrating forms of tumors, tumors demonstrating multifocality or diffuse *in situ* lesions from any conservative procedure.

There is also a consensus that pathological examination of the axillary content is necessary to decide adjuvant systemic treatment. The discussion going on now among the surgical experts concerns the merits of radical axillary dissection vs. lesser procedures [9].

The proponents of the first attitude argue that it gives complete information and possibly precludes axillary irradiation.

Those who support lesser procedures think that if the extent of node sampling is adequate, one obtains adequate information and the chances of arm oedema are reduced.

There yet remain many questions concerning the benefit of adjuvant systemic therapy in N− cases. Negative prognostic factors taken into account by many, but not all, investigators are aggressive local infiltration, poor differentiation, high mitotic index, absence of hormonal receptors, and what seems to emerge as the single most significant prognostic factor, the tritiated thymidine labelling index [10].

As one can see, tumor markers are noticeably absent as potential guides for decision making.

Axillary dissection will certainly be seriously reconsidered if another reliable prognostic factor emerges.

If there is a general consensus to irradiate the remaining homolateral breast with about 5000 rad, most of the experts think that the tumor site should recieve a booster dose of between 1500–2000 rad, even if the need for this was not demonstrated in a randomized fashion. The boost is given either by supervoltage therapy, electron beam or irridium implant. Here again no method has been proven to have therapeutic superiority. Implantation is difficult in small breasts but its cosmetic results are better in deeply located tumors in larger breasts [11, 12].

Still less extensive surgery for breast cancer? It seems that for tumors whose dimensions and other clinical characteristics allow a complete local resection with a good cosmetic result, we have now reached the minimum minimorum. There is no rationale for incisional biopsy in those cases: although radiotherapy alone is possible, all information other than a diagnosis of malignancy is definitely lost and the risk of failure is increased. The next forseeable surgical reduction will concern the axillary dissection, at least in No cases, if a reliable prognosis can be obtained otherwise.

But lesser surgery does not mean less treatment. The responsibility of the radiotherapist and his skill becomes of paramount importance, notwithstanding medical oncology trials investigating primary systemic treatment.

An end to mutilating surgery does not depend entirely upon the surgeon. Education of the general public and awareness of the medical profession play the major role in it [13].

Although the cure of breast cancer without surgery is everybody's wish, it must be approached very cautiously, step by step. It will need time, imagination, multidisciplinary skills and collaboration.

For the surgeons, it means a thoughtful reappraisal of their role, quite different from that of the young hussars in the fifties who saw no limit to their super radical resections.

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