

HISTORICAL TRENDS IN CANCER SURGERY*

by

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IN cancer surgery, according to Brock (1948), 'one evolves towards a more efficient and more radical procedure'. Let us examine in this paper the historical trends in this direction.

Literature

There are but few early accounts of operations for the removal of tumours (Bishop, 1960). Thus, Beckett (1711) tells us that 'by the account we receive from authors we cannot be positively assured, whether there was any particular established method in the first stages of this art'. Although he was only referring to breast cancer—and this was the tumour about which most early authors wrote—his assessment of the earliest cancer literature nicely covers the whole of our subject.

The surgical texts of Read (1635) and Cooke (1685) contain only references to drug treatment of cancer, but Gale (1563) included cancer among 'tumores againste nature' for which surgical intervention was required. Banester (1585) and Pratt (1689) both quoted the views of Aetius and Hippocrates who were in support of the curative role of extirpation. Freind (1726) found the precepts of Rhazes, who also supported surgical excision, to be 'worth the perusal of some modern practitioners'. On the other hand, Barrough (1634) cited Celsus whose teaching was that after surgery carcinomata 'will return againe, and give occasion of death'. This author also said, '*Galen* also before *Avicen* his time, did allow that cancers might sometime be cured by chyrurgery'.

Excision of Tumours

John Hunter spoke thus to his students during the years 1786 and 1787:

In the dissection of common tumours we need not be at all nice about the tumour, nor in removing any of the surrounding parts; but in scirrhus, or cancer, the incision must be extended to surrounding parts, and this is not for convenience, but for the success of the operation.

In like manner, Daviel (1755) dealt delightfully with the surgery of the eyelids. He first alludes to those who treated these growths with 'frog-spawn-water, and other such ingredients, as serve only to amuse the patient', and then asks:

Why should these therefore be thought more desperate than the breast, lips and many other parts, which often yield to the knife, when directed by a skillful hand? I will venture to say it is indolence, little or no experience, and an ill-grounded fear, in oculists, both ancient and modern, that made them believe these kinds of diseases ought to be treated differently from others. A bad prejudice!

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... therefore there is but one method, but it is a sure one, of curing them, and hindering their progress; which is to take them off with a cutting instrument, destroying the periosteum and perichondrium, or even the lids, if the cancer has penetrated them in their substance . . .

Lest the tumour bud afresh, the teaching was that nothing of it should be left behind (Barbette, 1672). In extirpating lip lesions, Reid (1764) made a point of 'observing rather to take away some of the sound parts than to leave the least bit of the cancer remaining'. Therefore, Munro (1792) and Burns (1811) taught that surgery should only be resorted to when the whole of the cancerous parts could be removed. To achieve worthwhile results Syme (1831) and Moore (1860) both urged the advisability not only of cutting wide of the tumour but also of excising the whole organ or part of the body.

Limb amputation for cancer was probably not uncommon (Gooch, 1773; Baillie, 1793). Muscle excision was, however, frowned upon in cancer of the breast. Beckett (1711) said:

A very considerable author speaking of extirpating a *cancerous breast*, advises us to take care we do not cut the pectoral muscle . . . Now, [he continued] if our predecessors had so great a respect to the avoiding the wounding of this part, as to make their incisions too superficial, their operations must be in all probability unsuccessful . . .

Years later, practice still varied. Thus, while Warner (1760) 'separated' the growth in the breast from the underlying muscle, Dunn (1724) 'cut quite round close to the ribs'.

When the French Academy of Medicine held a discussion on cancer in 1855, one of the speakers lamented that timidity among surgeons was very frequently the only cause of failure to cure the disease. However, although the trend towards more radical procedures was becoming more apparent with time, there was also an awareness of the need for conservation of tissues. Thus, Aitken (1779) was enlightened:

And although all the morbid portion is solicitously to be removed, yet the sound parts, particularly the skin, for the most obvious reasons, ought not to be wantonly destroyed.

Lymph Node Clearance

For long, lymphadenectomy during the treatment of tumours was disputed. Dawson's (1824) doubts were not mincing:

Let it be a standing rule—to transgress which is criminal—that no operation is to be attempted where the axillary and inguinal glands are implicated. From such an operation no good can result: the surgeon is more cruel than the disease; for he is an intelligent being, and ought to blush for his folly and rashness.

Liston (1840), likewise, was convinced that no one should be 'so rash or cruel' as to attempt the removal of nodes that were metastasized. Miller (1850) moreover, contended that the operation was still contra-indicated even if the affection of the lymphatics was only trifling. Operating in the face of the deposits in the nodes brought, Pirrie (1852) proclaimed, only discredit upon surgery. It is true to say, as did Vincent (1847), that many a surgeon was deterred from operating by lymph node metastases.

On the other hand, voices in the vanguard of clearance of noxious nodes

were clearly clamant. Sharp (1743) submitted that, although some questioned the possibility of extirpating these nocent nodes without injuring the great vessels, he was able himself to affirm that this was possible. Other workers, among them James (1745) and Le Dran (1749), were warning that leaving the nodes behind left the patient with his disease uncured. Richter (1794) reminded his fellow surgeons that the enlargement of the nodes was at times not due to metastasis and, therefore, should 'at least . . . not always contra-indicate the operation'. Or, as Spence (1868) saw it,

But if the glands have become affected, and the disease be more widely spread, some say we should not interfere at all; but this is too exclusive.

Slowly the idea gathered momentum and involved nodes were even being removed in continuity with the parent tumour by Dorsey (1813) and Gibson (1832). Indeed, both Benjamin Bell (1801) and Benjamin Brodie (1840) noted that operation was apt to reveal unexpected nodal deposits; it was important, in consequence, to examine them on exposure (Moore, 1860). By 1881, Keetley was removing all *suspicious* nodes and Hutchinson *every* node in the operation field.

Surgical Finesse

Let us consider some of the finer aspects of the ascendancy of radical surgery. Gooch (1773), who was 'convinced from much and long experience' of the need to include healthy tissues around the tumour in the excision, added that

it is needless to say, that the operation is to be performed in the most easy and gentle manner which the nature of the disease and the rules of surgery will admit of.

The patient's fitness for the operation was taken into account. Wiseman (1676) operated on those who were 'of a strong constitution, and of a tolerably good habit of body, and not in a declining age'. Surgery was not to be attempted 'but in a body that is able to undergo it' (Browne, 1703), and for a tumour 'in a place where it can be extirpated with safety' (Moyle, 1703). The need for a safe operation was reiterated by many (Boulton, 1713; Macbride, 1772; Munro, 1792; Dawson, 1824).

Barrough (1634) advised that the surgeon should first go into consultation with the physician and that after the operation he should 'wring the thicke blood out of the adjoining parts'. In a similar vein, Charriere (1712) urged surgeons to 'press those parts to evacuate the blood and matter that may have contracted the malignity'. Geudron (1700), on the other hand,

laughs at the precept so often inculcated, to suffer the part to bleed freely to discharge the remains of malignity, recommending instead of this his own practice, to apply pledgits, with some arsenical caustic . . .

This early appreciation of the chemical destruction of cancer cells in surgical wounds is in line with the further observation of Bence Jones (1867) that 'the chemical or mechanical removal' of all cancer cells alone could afford a respite.

Although bleeding was fashionable, the early surgeons did not permit excessive blood loss at operation. Wiseman (1676) noted that it was the surgeon's business to stop the blood as he pleased. Browne (1703) exhorted him not to operate on

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very large tumours 'lest your patient dies under your hands, with a large flux of blood'. He also pleaded against dividing infiltrated vessels fixed to the chest for 'in so doing, you at once had as well cut your patient's throat'. To stop blood loss Charriere (1712) used the 'actual cautery' and Sharp (1743) tied the vessels with 'sponge wrung out of warm water'.

Gataker (1764) took justifiable pride in operated patients whose wounds 'healed in a few days, so as to leave hardly any visible mark that an operation had been performed'. In this connection, Hill (1773) also mentioned the good results that accrued from the use of the 'twisted suture' to hold the skin edges together.

Palliative Procedures

The use of non-surgical palliative measures in cancer cases has long been known (Browne, 1703; Peyrilhe, 1775). The points in favour of the surgical measures were well put by Morgagni in 1769:

... if this method be not attended with a less severe pain, that pain is at least shorter in its continuance: so that by this means the prolonging of life, at least, if not life itself, costs the patient less, although the cancer should return afterwards; and they are free, in the meanwhile, from the continual and excruciating tortures of a very filthy disease.

Spence (1868) was succinct on this ever-present problem:

Excision, even as a palliative, is, I believe, the best treatment, removing the affected glands as well as the tumour.

Assessment of Results

Assessment of the early surgical results is difficult on account of the confusion of cancer with other conditions that prevailed in those days. Geudron (1700) stated that the 'ancients' confounded cancers with other hard and painful swellings. Similarly, Burns (1811) complained that even in his own day many dissimilar diseases were apt to be 'huddled together' with cancer. The diagnostic difficulties encountered in a case which was unravelled at autopsy were spotlighted by Velpeau in 1825:

Läennec, Boyer, Richerand, Dupuytren, Beclard, Breschet, and other lions of Paris, gave almost as many opinions as there were persons.

We may, nevertheless, consider the surgeon's own evaluation of the cases treated as cancer sufferers. Although the results often disheartened the surgeons, there is a refreshingly modern ring about Sharp's (1743) view:

the instances where life and health have been preserved by it are sufficiently numerous to warrant the recommendation of it.

Hill (1773) concluded that many of his patients

lived as long after the extirpation of the cancers, as, according to the bills of mortality, they would have done, had they never been affected with cancer or undergone any operation.

Likewise, Gooch (1773) was satisfied that some of his patients 'continue perfectly well after more than 10 years'. Liston (1840), however, drew attention to the recurrences which could occur 'many months, or even years, after the excision

of the original disease'. Such relapses, according to Colles (1844), occurred less often in the older patients; in Sharp's (1743) estimation they occurred least in those whose tumours had 'admitted of a long delay before the operation'. Syme (1831), Lizars (1838) and Cooper (1840) knew that lymph node metastases worsened the prognosis, while Shaw (1745), Leake (1777), Guy (1778), Howard (1811) and Gant (1886) stressed that early diagnosis would improve the results.

Surgeons' Theories

Scarpa (1818) pointed out that, although pathology made contributions to surgical progress, it served on occasion to remind the surgeon of the insufficiency of the means at his disposal. In 1871 Arnott made the point that in cancer surgery

the zeal and hopefulness with which the surgeon sets about this task will depend in a great measure upon the particular theory which he may hold.

We turn, therefore, to an appraisal of the surgeon's view of cancer metastasis.

The surgeon held the views which I showed elsewhere (Onuigbo, 1958; 1959) were—and still are—orthodox, namely, that carcinomas spread *lymphogenously* to the lymph nodes but *haematogenously* to the organs. Thus, as Erichsen (1864) put it,

when the secondary deposit takes place in *internal organs* . . . it is reasonable to presume that the cancer-cells have entered the blood, are carried into the general current of the circulation, and are deposited just like pus-corpuscles in pyemia in these organs, where each cancer-cell forms the nucleus of a new growth.

The emphasis on the role of the blood stream in distant dispersal of cancer and the relegation of the lymph stream to local lodgement can be assessed from the surgical texts of Freke (1748), Sharp (1750), Leake (1777), Johnson (1810), Macfarlane (1832), Macleod (1864) and Warren (1895). Perhaps if the emphasis is reversed and the lymph stream indicted as the major metastatic pathway to distant destinations, as I have urged elsewhere (Onuigbo, 1957; 1961), the increased attention that would be paid to the excision of the lymphatics may redound to the advantage of the patient, seeing that today radical cancer surgery is still evolving.

Patients

Collins (1685), a physician, advised patients with ulcerated cancers 'to fly to chirurgeons, as to a sanctuary'. What, we may ask, was the relationship existing between the patient and the surgeon in the past? According to Wiseman (1676), the surgeon

may do well to forewarn the patient of the danger (of his disease); and if it be loose, and in a place where it may be safely extirpated, propose it to them, lest afterwards they desire it when it is too late.

As might be expected, some patients, like Gooch's (1773), 'would not consent to it' when it was proposed to them.

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In the opinion of Burns (1831), if the disease was already advanced, 'the best practical surgeons, although willing to perform an operation when desired, decline urging it'. Thus, as Morgagni (1769) wrote, the entreaties of the patients often overcame the surgeon's reluctance to operate. The narration of Macfarlane (1832) of Glasgow is apposite:

The disease was too extensive to be thoroughly extirpated: but as this poor woman had come from a great distance in the Highlands, and was exceedingly anxious to have the operation performed, even after she was candidly told that there was every probability of its proving unsuccessful, her urgent entreaties were complied with.

It is of interest that the lay public was not unaware of the need for early diagnosis and treatment. Suttleffe (1824) told vividly of a fatal case of lingual cancer:

The husband (not the kindest spouse in the world), stung with remorse, gave vent to his distressing feelings by impugning the imperfection of the healing art, till I was obliged repeatedly to remonstrate with him, saying, 'My unhappy friend, why censure us—surely some diseases are incurable? If it please God to visit you or me with such a one, we ought rather to be "dumb, and not open our mouths".' He replied, 'Oh! but could the case not have been seen and known earlier, and provision made accordingly?' 'Doubtless,' said I, 'in more instances than the public is aware of; but what human discernment can distinguish an adder from an eel, when the creature first betrays symptoms of life?'

Conclusion

A background to present-day radical procedures in cancer surgery has been outlined. Before the close of the last century, Halsted's (1890) radical mastectomy was to make its crowning appearance on the surgical scene. This operation now 'has stood the test of time' (Riddell, 1948). Undoubtedly, as Brock (1948) affirms, the evolutionary trends towards more efficient and thorough procedures would continue in the years to come.

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