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Modern Surgery, 4th edition, by John Chalmers  
Da Costa

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## Modern Surgery - Chapter 38. Diseases of the Breast

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## XXXVIII. DISEASES OF THE BREAST.

**Mammillitis and Fissure.**—The nipple may inflame as a result of injury, but the condition is rarely encountered except in a woman who is nursing a baby. It is most common after a first pregnancy, when the nipple is deformed or when the skin is delicate. The nipple is slightly injured during nursing, and the epithelium is macerated by the milk and saliva. If the inflammation is not arrested, a spot excoriates or an irritable ulcer forms (a fissure). A fissure is often surrounded by an area of acute inflammation, and nursing causes intense agony. Because of the pain the mother is apt to extend the intervals between nursing, and as a consequence the breasts become swollen with retained milk. The ulcer not unusually bleeds when the breast is taken by the child. Besides the fact that a fissure causes pain to the mother, it often leads to grave trouble. It is a suppurating area, and as such may lead to abscess of the mother's breast, or may impair the health of the nursing child.

**Prevention of Fissure.**—During pregnancy the nipples should be carefully attended to. They should be washed often in sterile water and bathed in alcohol, and if retracted ought to be drawn out repeatedly. During lactation the nipples are washed in sterile water, dried, and dusted with borated talc powder as soon as an act of nursing is completed. Washing the nipples regularly with the following solution tends to prevent the formation of a fissure: iodid of mercury, gr. ij; alcohol, ℥jss; glycerin and distilled water, āā a pint (Lepage). If a small abrasion appears, order the woman to wear a nipple-shield during nursing, and after each act of nursing to wash the part with hot sterile water, dry, and dust borated talc over the surface. If a fissure forms, wean the child at once, and dry up the milk in both breasts. It is useless to try and dry it up in one breast. Milk may be dried up by applying ointment of belladonna locally, and administering iodid of potassium internally; by strapping the breasts with adhesive plaster (Parker); or by applying to the nipples six times a day a 5 per cent. solution of cocain in equal parts of glycerin and water (Joise). The fissure is not treated by ointments. These preparations are septic, prevent drainage, and aggravate maceration. Wash the fissure twice a day with peroxid of hydrogen, dress it with gauze wet in boric-acid solution (gr. x to ℥j of water), and cover the dressing with waxed paper. If the fissure resists treatment, touch it with lunar caustic.

**Acute Mastitis and Abscess.**—Acute inflammation of the breast, as a result of injury of the breast or nipple, may occur in either sex at any time of life. Very commonly in both sexes a few days after birth the breast becomes distended with a material which in reality is milk. The fluid is usually small in quantity. The process is physiological, and, as a rule, ceases spontaneously (Guelliot). If it lingers, the application of belladonna ointment will stop secretion. If the nurse meddles with and tries to squeeze out the fluid, acute mastitis is apt to arise in one gland, or occasionally in both. The skin of the breast reddens, the gland swells and becomes tender and painful, the child loses its appetite and becomes feverish, restless, and sleepless. Such a condition is treated by the local use of lead-water and laudanum. If pus forms, the local signs and constitutional symptoms are aggravated. Evacuate

the pus, dress with hot antiseptic fomentations, and be sure that the child is well nourished. Tonics and stimulants are indicated.

A condition identical with the secretory activity of the glands of the newborn may occur in either sex at puberty. The methods of treatment are the same in both cases. As a matter of fact, rarely more than one lobule at this period inflames, and suppuration is most unusual.

Mastitis is most usually met with in a woman who is nursing a child, and is due to bacterial infection. Primipara are particularly liable to develop mastitis. So are women with deformed nipples. In many cases an abrasion of the nipple exists, and through this breach of continuity bacteria gain entrance to the breast-tissue. The abrasion may be so slight that it can only be detected when the nipple is examined through a magnifying-glass (Marmaduke Shield). Streptococcic infections are very generally due to inoculation of a fissure of the nipple. Bacteria may pass up the milk-ducts, coagulating the milk and penetrating through the walls of the acini. Staphylococci not unusually pursue this route in reaching the breast-tissue. Occasionally causative bacteria reach the breast through the arteries (in septicemia and in septic wounds of the genital organs).

**Symptoms.**—There are pain, swelling, and tenderness in the breast, and in most cases a fissure or abrasion exists. There is a febrile condition. Occasionally a chill ushers in the attack.

**Treatment.**—Order the patient to suspend nursing. The physician endeavors to arrest the secretion of milk. Treat the nipple as advised on page 1046. Support the breast and apply ichthyol ointment or lead-water and laudanum.

Mastitis may undergo resolution; it may terminate in organization and induration; it may eventuate in suppuration.

**Acute abscess of the breast** follows acute mastitis. There may be but one area of suppuration, or multiple foci may exist, which eventually fuse. The symptoms of mastitis, local and constitutional, are greatly aggravated. After a time the skin becomes dusky and edematous. The axillary and superficial cervical glands enlarge. The abscess will eventually open spontaneously at one or more points, leaving branching fistulæ. A superficial abscess is situated just beneath the nipple, and pus may flow from the nipple.

An intramammary abscess is in the depths of the gland. There are often multiple foci of suppuration. Nodules are felt in the gland, pus may run from the nipple, but cutaneous redness is late in appearing.

Retromammary abscess is a rather rare condition. It may occur alone or be associated and connected with an area of intramammary suppuration. It may result from metastasis or from caries of a rib. The breast is lifted up by the fluid beneath it.

**Treatment.**—Open a superficial abscess by an incision radiating from the nipple. Treat as any other acute abscess. An intramammary abscess should be opened by a radiating incision, and pockets of pus should be broken into with the finger. An examination is made to determine if a retromammary abscess also exists. If this is found to be the case, an incision is made at the point of junction of the thorax and mammary gland, and at the lower border of the gland. The gland is raised from the chest-wall, the pus evacuated,

a drainage-tube is inserted, and a few sutures are introduced. If retromammary abscess exists alone, make the last-named incision in the first place.

**Chronic Mastitis.**—This condition may be present in only a portion of the breast, or may attack many lobules (lobular mastitis). The ordinary form may arise after weaning a child, or may be due to a blow, to the pressure of corsets, or to numerous slight traumatisms. It may occur in the young, the middle aged, or the old. The patient has slight pain at times in the gland. Examination detects a firm, elastic area, which is somewhat tender and does not possess distinct margins. The skin is not adherent to the mass unless suppuration occurs. If the mass is pressed against the chest by the surgeon's fingers, it becomes evident that no real tumor exists.

**Treatment.**—Remove any cause of irritation. Support the breast in a sling. Apply ichthyol ointment. During the night employ a hot-water bag. If pus forms, treat as before directed.

**Chronic lobular mastitis** is a condition in which numerous lobules become indurated. The real cause of this condition is unknown. It may occur at any age after puberty, and often attacks both breasts. Such a breast is apt to be painful, especially at the menstrual periods; it feels unnatural, solid, and careful examination detects numerous indurated areas, each of which is of small size. At the menstrual period the breast enlarges and new nodules may be detected. In some of these cases violent neuralgic pains are present in the gland (mastodynia). Chronic lobular mastitis is apt to lead to cyst-formation. When cysts form fluid may occasionally discharge from the nipple.

**Treatment.**—Support the breast and apply ichthyol ointment or belladonna ointment. Examine the generative organs and correct any existing abnormality. Improve the general health by good food, tonics, and open-air life. In cases where multiple cysts are known to exist the question of treatment is uncertain. There seems to be little doubt that such cases tend in some instances to eventuate in cancer. I believe that the proper treatment when multiple cysts exist is extirpation of the breast.

**Tuberculosis of the Mammary Gland.**—(See page 125.)

**Cysts and Tumors of the Nipple.**—**Tumors** are rare in the nipple, but do sometimes occur. The following growths are occasionally seen: fibroma, angioma, papilloma, myxoma, myoma, and epithelioma. Sebaceous cysts of the nipple and areola are not very unusual. A cancer of the nipple may be a primary growth, or may be secondary to gland cancer. Primary epithelioma of the nipple presents the same general characters as epithelioma in any other region. It begins as an indurated area in the areola, or an excoriation of the nipple. Ulceration soon occurs. The ulcer is irregular in outline, has hard edges, and furnishes a foul, red, sanious, and fetid discharge. The mammary gland becomes infiltrated at an early period. The subclavian glands enlarge, and later the axillary glands. Such a growth must not be confounded with a chancre of the nipple.

**Treatment of Tumors of the Nipple.**—Innocent tumors are to be excised and the breast need not be removed.

Epithelioma of the nipple requires the complete extirpation of the breast, and also the clearing out of the lymphatic contents of the axilla, and possibly of the subclavian triangle.

**Paget's Disease of the Nipple** (Malignant Dermatitis).—This condition is a chronic inflammation of the epithelial layer of the nipple and areola occurring in women beyond middle life, and is a not unusual precursor of epithelioma of the nipple and of duct cancer. Paget's disease is not a simple eczema, it is not associated with the usual causes and attendants of eczema, either local or constitutional, and is not cured by remedies which control the ordinary disease.

The diseased area is raw and red, and from it exudes copiously a thick, yellow discharge. In some cases Paget's disease is secondary to duct cancer, auto-infection of the nipple having been effected by the fluid flowing from the ducts. Investigations have shown the presence of psorosperms in areas of Paget's disease.

**Treatment** consists in removal of the entire breast and clearing out of the axilla and subclavian triangle.

**Tumors and Cysts of the Mammary Gland.**—These tumors may be innocent or malignant.

**Innocent Tumors of the Mammary Gland.**—The innocent tumors are: *Fibro-adenomata or cystic adenomata, myxomata, villous papillomata, and angiomata*. It is maintained by most authorities that any innocent tumor of the gland may and often does become malignant.

**Fibro-adenoma.**—The nomenclature of fibro-adenomata is in a state of great confusion. The name fibro-adenoma was given by Cornil and Ranvier to the same sort of growth which the younger Gross called a fibroma, Billroth an adeno-fibroma, and Sir Astley Cooper a chronic mammary tumor. It is doubtful if a pure fibroma ever occurs in the mammary gland. A fibro-adenoma consists of acini surrounded by fibrous tissue. Each of these structures proliferates, but the fibrous tissue does so much more rapidly than the glandular. A growth of this character is surrounded by a capsule, and is movable. It is firm, elastic, lobulated, superficially situated, and of slow growth. It is unassociated with retracted nipple, glandular enlargement, adhesion to the skin, or cachexia, and may occur at any age up to fifty, but is most common between twenty and thirty (J. Bland Sutton). Such a tumor is rarely very painful, but it may be tender on rough handling and may be painful at the menstrual period. As a rule, there is but one of these tumors in a mammary gland, but one may exist in each gland.

*Treatment.*—Extirpation of the tumor.

**Cystic adenoma (adenocoele)** is a rare form of slowly growing tumor, which is apt to attain a large size, which is nodular in outline, hard to the touch, and firmly attached to the mammary gland, but mobile upon the chest. A cystic adenoma has a distinct capsule. This form of tumor is painless, and is most apt to occur in women between thirty and forty who have borne children. The growth is adherent to the skin, but the cutaneous surface is not discolored, the cutaneous veins are not distended, the axillary glands are not enlarged, and the nipple is not retracted. From the walls of the dilated acini papillomatous growths are apt to arise (intracystic vegetations).

*Treatment.*—Removal of the breast.

**Myxoma** is a rare tumor, and only occurs in a person of middle age. The growth is solitary, is soft, may be round or lobulated, and occasionally

fungates. The nipple is not retracted, the superficial veins are not distended, and the axillary glands are not enlarged.

*Treatment.*—Removal of the mammary gland.

**Angioma.**—This form of tumor is very rare. It may arise secondarily to a nevus of the skin (Sutton). The diagnosis of angioma of the skin is readily made. In a cavernous angioma of the breast it will be found that the tumor can be lessened in size by pressure, and will be increased in size by coughing, laughing, and holding the breath. Pulsation may be detected and a bruit may be audible.

*Treatment.*—For treatment of nevus see page 258. If a cavernous angioma exists in the mammary gland, it will be necessary to extirpate the gland.

**Cysts of the Mammary Gland.**—**Involution cysts** (cystic degeneration of the mamma) occur in women who are approaching the menopause. They occur earlier in those who are sterile than in those who have borne children, and may arise after chronic mastitis. The parenchyma of the gland undergoes atrophic change, but the ducts remain, become blocked and dilated. Numerous small cysts form, and both glands, as a rule, suffer. Villous growths may arise in the walls of the ducts. In some cases there is much white fibrous tissue between the cysts (cystic fibroma).

The subjects of this disease are often nervous, hysterical, and despondent. One or more ill-defined indurations are detected. Frequently there is a history of discharge from the nipple and of attacks of lancinating pain in the breast. Cystic breasts are dangerous, because the intracystic vegetations are liable to eventuate in duct cancer.

*Treatment.*—In such cases, after confirming the diagnosis by an exploratory incision, remove the entire breast (Snow).

**Lacteal cyst (galactocele)** is an accumulation of milk brought about by blocking of some of the milk-ducts. It arises soon after the delivery of the child, and grows rapidly. A large quantity of milk may collect, and rupture of the cyst-walls can occur, the fluid passing into the glandular connective tissue.

A galactocele is rounded, fluctuates distinctly, and increases in size during nursing. There is little or no pain. In some cases the contents of the cyst coagulate and a solid mass is formed.

*Treatment.*—Incision and drainage.

**Hydatid cysts** are rare, but do occasionally occur. There are 33 positive cases on record (Le Conte, in "Amer. Jour. Med. Sciences," Sept., 1901). A small, hard, movable, and painless mass appears in the mammary gland. Usually it gradually increases in size, but it may grow rapidly for a time and then remain apparently almost stationary for a period. If rapid growth takes place there is always pain, and pain is usual in any case when the cyst attains considerable size. Fluctuation is often absent and crepitation is never obtained (Le Conte). Suppuration is apt to occur and sinuses may form.

*Treatment.*—A small and recent cyst may be extirpated. If the cyst is not recent, but is fairly large and adherent, incise, evacuate, and pack with gauze. If the cyst is large and adherent, but is surrounded by considerable breast-tissue, partially amputate the breast (Le Conte). If the cyst is large and the breast practically destroyed, or if the nipple adheres to the cyst, remove the mammary gland (Le Conte).

**Malignant tumors of the mammary gland** are ten times more common than innocent tumors.

**Sarcoma.**—Sarcoma of the mammary gland is a very rare growth (less than 10 per cent. of breast tumors). It may occur at any age from puberty to old age, but is most common from twenty to thirty-five. The growth may be composed of round cells or spindle cells; both varieties may be present, and myeloid cells may be found. Circumscribed sarcoma arises usually between the ages of twenty and thirty; it is firm to the touch, as it contains much fibrous tissue, is painless, does not grow very rapidly, glands are not involved, and there is no cachexia. The nipple is not retracted. The growth may adhere to the skin. It is composed of giant cells or spindle cells, and rarely returns after extirpation of the breast.

Diffused sarcoma is composed of small round cells, arises in the center of the breast, and grows with great rapidity. It is most commonly met with about the age of thirty-five, and a history of injury can often be elicited. The tumor is soft, some parts being softer than others because of cyst-formation. It is usually mobile upon the thorax, though it soon becomes adherent to the skin. The tumor reaches a very great size, and soon fungates through the skin. There is little or no pain. The cutaneous veins over the tumor are distended, the nipple is not retracted, and the axillary glands are not often enlarged. Diffuse sarcoma is apt to recur after removal.

**Treatment.**—Remove the breast, and if the muscles of the chest-wall are infiltrated, remove them. The axillary glands are removed if they are enlarged, but not otherwise. Operation will not cure when metastases exist. If the case is inoperable, we can try the use of Coley's fluid. If the toxins of erysipelas fail to arrest the progress of the disease, keep the patient as comfortable as possible by the administration of cocain and morphin.

**Carcinoma or Cancer of the Mammary Gland.**—The great majority of mammary tumors belong to the genus carcinoma. Cancer is due to proliferation of the epithelium of the acini (acinous cancer) or of the ducts (duct cancer).

**Acinous cancer** is vastly more common than duct cancer. Usually there is much connective tissue and but little parenchyma in the growth (scirrhous cancer). In some cases there is little connective tissue and much parenchyma (encephaloid or medullary cancer). If colloid degeneration of the parenchyma or stroma occurs, the growth is spoken of as colloid cancer.

Scirrhous, the common form of acinous cancer, is almost as hard as stone. On section it is concave, and Sutton says "resembles an unripe pear." The tumor is without a capsule, and the epithelial cells are surrounded by masses of fibrous tissue. Portions of tissue, even some distance away from the tumor, contain foci of proliferating embryonic epithelial cells. In atrophic or withering scirrhous the fibrous stroma contracts and epithelial cells undergo fatty degeneration (Senn).

**Causes and Symptoms.**—*Scirrhous* is more common among women who have borne children than among those who have not. Heredity is manifest in only about 10 per cent. of cases (Bryant). The younger Gross found it in 1 case out of 9. Trauma has no apparent influence in producing cancer. The disease is rare before the age of thirty-five, and is most common between forty-five and fifty. The author operated for scirrhous of the breast on a

woman only twenty-seven years of age. Henry saw a woman of twenty-one with cancer. It is frequently met with in the aged. These tumors are rare in the negro race. A hard nodule is found in the breast, usually under the nipple, but possibly far away from it. The growth is nodular, and is immobile from the beginning. In a large, fat breast there is often a deceptive sense of mobility, because some of the breast-tissue moves with the tumor. The cancer may have been present for a considerable time before being discovered. In obscure lesions of bones and viscera examine the mammary glands, because the trouble might be due to metastasis from an undiscovered carcinoma of the breast. Retraction of the nipple is present in over one-half of the cases (S. W. Gross). It occurs when the growth is near the nipple, and is due to the contracting fibrous tissues of the tumor pulling on the milk-ducts. If the growth is far away from the nipple, a dimple is apt to form on the skin of the breast because of the pulling upon the suspensory fibers.

Glandular enlargement in the axilla soon follows the appearance of a scirrhus; the glands become very hard and adherent. In over 60 per cent. of persons the glands of the axilla are felt to be enlarged when the patient first comes for treatment. Because the surgeon cannot feel enlarged glands is no proof that there are none. As a matter of fact, the glands are usually involved within two months of the beginning of the disease, but the involvement can rarely be detected externally until months later. Enlargement of the axillary glands is followed by enlargement of the glands in the posterior cervical triangle and in the mediastinum. Herbert Snow has shown that the blocking of the axillary glands often leads to regurgitation of lymph containing cancer-cells, the cells being thus deposited in the head of the humerus and the thymus gland. Cells in the thymus, after a time, cause a projection of the sternum (the sternal symptom). When the axillary lymphatics are extensively involved the arm swells from obstruction to the lymph-flow (lymphedema) or pressure upon the vein. The tumor usually grows rather slowly unless lactation is established, then it grows rapidly. As it grows it infiltrates adjacent structures (the pectoral fascia, pectoral muscles, subcutaneous cellular tissue, and skin). When the skin is destroyed an ulcer forms, and around this ulcer the skin becomes red and filled with cancerous nodules, which feel like shot in the skin. Metastases are apt to occur into the bones, liver, brain, pleura, spine, thymus gland, and rarely the eye.

Pain is usually present in scirrhus carcinoma. It is lancinating and neuralgic in character, and not brought on or increased by handling. It ceases if colloid degeneration begins. The general health is usually unimpaired until ulceration takes place, when cachexia arises. The *cancer en cuirasse* of Velpeau is a condition in which the lymphatic vessels of the skin are extensively invaded, the growth itself being adherent to the wall of the thorax. In this condition the chest-wall is fixed, respiration is difficult, and the temperature is commonly somewhat elevated.

In *atrophic* or *withering scirrhus* the contraction is so great that it seems as though the mammary gland had been removed. The duration of scirrhus, when left to run its course, varies, but the disease generally produces death within two and a half years. Occasionally it causes death within a year. In atrophic scirrhus the patient may live for many years.



Duct cancer is not a common growth. It arises from the duct-walls in conditions of cystic degeneration of the mammary gland. The tumor is softer than the acinous growth, and is not nodular. There is no pain, no retraction of the nipple, no skin dimple. Serous or bloody fluid may often be squeezed from the nipple. A duct cancer grows, infiltrates slowly, and involves adjacent glands later than does scirrhus.

**Cancer of the Male Breast.**—This condition is seldom met with, though I believe it to be more common than is generally supposed. I have seen 2 cases within the last ten years. Each patient was in the early forties; neither complained of pain. In one, the breast had been extremely large from early years. In each case the growth was indurated, but in neither was there any retraction of the nipple. The condition in each patient was scirrhus carcinoma. Warfield has collected 32 cases from literature and has added 5 others ("Bull. of Johns Hopkins Hosp.," Oct., 1901). The patients were between forty and seventy years of age. Eight gave a history of injury; in 9 cases there was pain, and in 12 the nipple was retracted.

**Treatment of Carcinoma of the Mammary Gland.**—The treatment is early and thorough operation; the earlier and the more thorough, the better. The older surgeons operated simply to prolong life a few months; the modern surgeon operates with the hope of curing the patient. In 1878 Billroth's statistics showed only 8 cures in 143 cases. In 1896 W. Watson Cheyne reported 12 cures out of 21 cases (57 per cent.). The operation should remove the breast and much of the skin above it, the pectoral fascia, and often the pectoral muscles; the fat and glands of the axilla, and sometimes the fat and glands of the subclavian triangle. If three years after an operation there has been no return, we regard the case as cured (Volkman's limit). As a matter of fact, recurrences are noted after five years, and this limit should be used instead of three years. Certain cases are unsuited for a radical operation: cases in which metastases exist; cases of *cancer en cuirasse*; cases where axillary involvement is very great. Cheyne would also rule out cases where large glands may be felt above the clavicle, believing that in such cases the mediastinal glands must be cancerous.\*

**Halsted's Operation.**—Halsted performs a very radical operation. He removes suspected tissue in one piece, and thus prevents carcinoma cells falling in the wound, for it is well known that if such cells should fall into the wound they may grow just as may a graft of healthy epithelium. The neck, shoulder, the arm to the elbow, the entire surface of the chest down to the waist, both breasts, the axilla, the side and the back of the diseased side must be sterilized. It is necessary to have, besides scalpels and the ordinary instruments for an operation, a great number of hemostatic forceps (80 to 100). Place the patient recumbent, with a sand-pillow under the shoulder of the affected side. The shoulder is right at the edge of the bed, and a nurse holds the arm from the side. Halsted describes his operation as follows:† The skin-incision is made as shown in Fig. 647, and is carried at once through the fat. The triangular skin-flap (*a, b, c,*) is turned down. The costal insertions of the great pectoral muscle and the muscle are split between the clavicle and costal portions and up to a point opposite to the scalene tubercle, and at this

\*See "Objects and Limits of Operation for Cancer," by W. Watson Cheyne.

† Johns Hopkins Hosp. Reports, vol. iv; Annals of Surgery, Nov., 1894.

point the clavicular portion of the muscle and the tissue overlying it are cut through close to the clavicle, and the apex of the axilla is at once exposed. The cellular tissue under the clavicular portion of the muscle is dissected from the muscle, and the splitting of the muscle is continued on to the humerus. The part of the muscle to be removed is cut through close

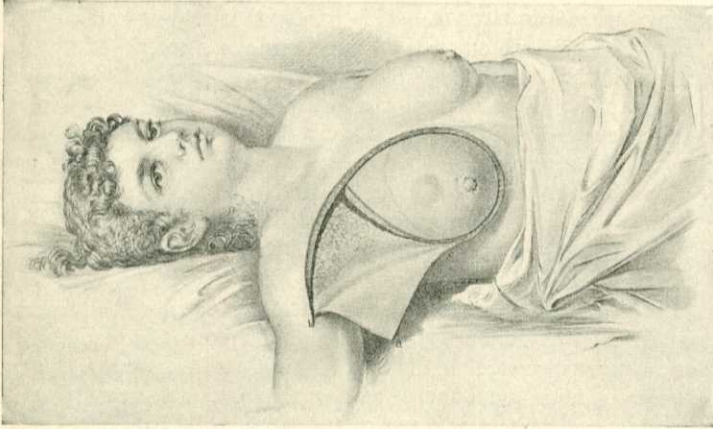


Fig. 647.—Halsted's operation for carcinoma of the breast; the first incision.

to its humeral insertion. The whole mass circumscribed by the first incision (skin, breast, areolar tissue, and fat) is raised with considerable force in order to put the submuscular fascia on the stretch as it is stripped from the thorax close to the ribs. It is well to include the delicate sheath of the pector-

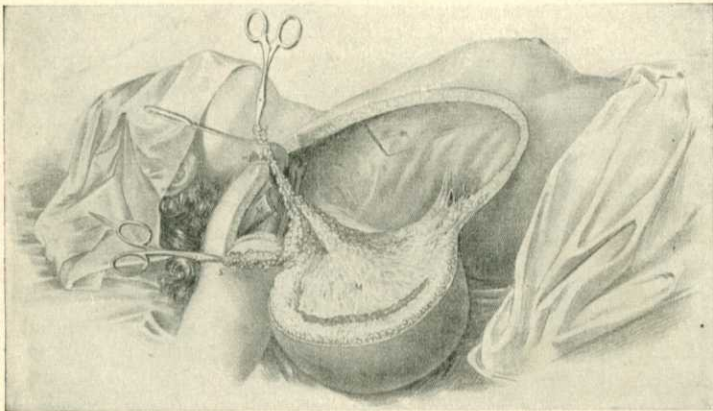


Fig. 648.—Halsted's operation for carcinoma of the breast; the mass turned down.

alis minor muscle. The lower and outer boundary of the lesser pectoral having been passed and exposed, the muscle is cut at a right angle to its fibers and a little below the middle. The tissue over the pectoralis minor muscle near its coracoid insertion is divided as far out as possible, and is then reflected inward to prepare for the reflection upward of this part of the minor muscle.

The upper portion of the minor muscle is retracted upward (Fig. 648). Some surgeons do not remove the lesser pectoral muscle. I believe it should be removed, because the axilla can then be more easily and rapidly cleared. The removal of the muscle does not impair arm movements, and its retention leads to the formation, when healing is complete, of a cord-like band in front of the axilla. (See Douglas Drew, in "Brit. Med. Jour.," May 17, 1902.) The small blood-vessels under the minor muscle are carefully separated from it, are dissected out very clear, and are ligated close to the axillary vessels. Having exposed the subclavian vein at the highest possible point below the clavicle, the contents of the axilla are dissected away with a sharp knife and the vein and its branches are stripped absolutely clean. The loose tissue about the artery and the nerves should also be removed. When the vessels are cleared the axillary contents are rapidly stripped from the inner walls of the axilla and the lateral wall of the thorax. The fascia which binds the mass to the chest is cut close to the ribs and the serratus magnus muscle. Just before reaching the junction of the posterior and lateral walls of the axilla, an assistant draws the triangular flap of skin outward in order to spread out the tissue which lies upon the subscapularis, teres major, and latissimus dorsi muscles. The operator cleans the posterior wall of the axilla from within outward. The subscapular vessels are clearly exposed, and are caught before they are cut. In some cases the subscapular nerves are removed, in others they are permitted to remain. Having passed these nerves the mass is turned back into its normal position and severed from the body of the patient by a stroke of the knife from *b* to *c*, repeating the first cut through the skin. Every bleeding point, however small, is tied with fine silk. From 60 to 100 ligatures, or even more, may be required.

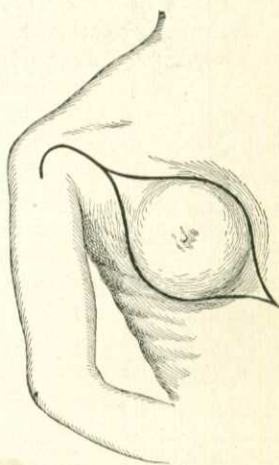


Fig. 649.—The younger Senn's incision for amputation of the breast.

After the completion of the operation the wound into the axilla is closed with a subcuticular stitch of silver wire; if a cut has been carried above the clavicle, it is closed in the same manner, and the edges of the elliptical opening are brought nearer together by a purse-string subcuticular stitch. Thiersch grafts cut from the patient's thigh are used to cover the gap. Silver foil is placed over the wound, this is covered with gauze, bandages are applied, and the dressing is overlaid by a plaster-of-Paris bandage, which includes the head, neck, chest, and arm. The area from which grafts were taken is dressed with sterile gauze or an ointment containing boric acid.

*The Younger Senn's Incision.*—A very useful incision is that described by the younger Senn, and shown in Fig. 649. The breast is circumscribed by two curvilinear incisions which meet above, at the border of the great pectoral muscle. The incision is continued a little internal to the outer border of the muscle to about one inch above the apex of the axilla, when it is curved outward in the deltoid region, and terminates at the level of the apex of the axilla. The breast is removed from

the wall of the chest, and is then suspended by axillary glands and fat, which are removed *en masse*.\* This incision gives a free exposure, opens the axilla from in front, enables the surgeon to quickly locate and freely expose the axillary vein, and the resulting scar does not limit materially the motions of the arm.

**Inoperable Malignant Diseases of the Breast.**—This term implies that a radical operation looking to cure is impossible. The conditions in which it is impossible have already been specified (page 1053). Even if the case is judged inoperable from the radical standpoint, it may be wise to remove the mammary gland, in order to free the patient from a hideous, ulcerating area, violent pain, and harassing hemorrhage.

It has been suggested that some cases inoperable by ordinary methods may be subjected to removal of the entire upper extremity or to disarticulation at the shoulder-joint with some prospect of cure. My own view, however, is that when a case has advanced so far that it is not amenable to ordinary operative treatment, neither of the above-mentioned procedures offers any reasonable chance of success. If the pain is excessively violent in an inoperable case, the surgeon may relieve it by dividing the brachial plexus, or perhaps by disarticulating at the shoulder-joint.

An inoperable case may be greatly improved—for a time, at least—by the use of the *x*-rays; and even when the condition is not benefited in other ways, this new force usually mitigates or greatly relieves the pain.

**Beatson's Operation, or Double Oöphorectomy.**—It has been pointed out by this surgeon that there is a certain similarity between the formation of cancer in the mammary gland and the process of lactation. In each there is an enormous production of embryonal epithelial cells; but in lactation the epithelial cells undergo fatty degeneration, and in cancer-formation they do not do so, but penetrate into the tubules and the acini and infiltrate the gland-structure. Beatson further points out that when a lactating cow is spayed, it continues to give milk indefinitely. This seems to indicate that removing the ovaries favors the fatty degeneration of the epithelial cells. This operation has been performed in cases of inoperable carcinoma of the breast, in the hope of bringing about degeneration in the tumor-mass. In the great majority of cases it fails utterly; but now and then it secures a notable improvement, and in a very few cases cure seems to have been obtained. Abbe obtained an apparent cure in two patients. It was at first thought that the operation would be applicable only to persons that have not passed the menopause, but one of Abbe's patients was over seventy years of age. Butlin, however, says that there is no genuine cure secured by this operation on record. My own view is that the procedure offers but little prospect of success, but that, as it does offer some, the exact facts should be placed before the patient, and she should be permitted to choose whether or not she wishes the operation performed. The operation is not to be considered, however, if visceral deposits exist.

\* See the younger Senn in Jour. Amer. Med. Assoc., May 27, 1899.