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REFERENCES

Dunlop, G. R., and Santos, R. (1957). *New Engl. J. Med.*, 256, 577.
 Haimovici, H., Shapiro, J. H., and Jacobson, H. G. (1960). *Amer. J. Roentgenol.*, 83, 1042.

Leriche, R., and Bertrand, I. (1946). *Thromboses artérielles*. Masson, Paris.
 Lindbom, A. (1950). *Acta radiol. (Stockh.)*, suppl. No. 80.
 Martin, P. (1958). *Angiology*, 9, 349.
 Mavor, G. E. (1958). *J. roy. Coll. Surg. Edinb.*, 3, 264.
 Palma, E. C. (1959). *Angiology*, 10, 134.
 Robertson, J. H. (1960). *J. clin. Path.*, 13, 199.
 Singer, A. (1963). *Arch. Surg.*, 87, 384.
 Texon, M., Imparato, A. M., and Lord, J. W. (1960). *Ibid.*, 80, 47.
 Winternitz, M. C., Thomas, R. M., and LeCompte, P. M. (1938). *The Biology of Arteriosclerosis*. Thomas, Springfield.

Pseudolipoma of the Breast: a Mask for Cancer

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A swelling which has the clinical features of a diffuse subcutaneous lipoma is not infrequently found in the breast, and it commonly indicates underlying cancer. A true lipoma of the breast is rare. This subcutaneous swelling differs from a lipoma, which is a localized excess of adipose tissue, because the fat is normal in amount but under increased tension in the spaces between the fibrous septa which run from the superficial surface of the breast tissue to the skin. The increased pressure in the interseptal compartments produces a tumour with multiple points of attachment to the skin, a definite edge, and the consistency of fat. The word "pseudolipoma" would seem appropriate for this lesion.

One lipoma and 21 pseudolipomas were observed in a series of 480 breast conditions, 147 of them infiltrating cancers. Cancer was found in association with 18 of the pseudolipomas and duct ectasia with three. A pseudolipoma was present in 12% of the breast cancers.

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Pseudolipoma is a signal finding, for it is likely that there will be a cancer beneath it and the cancer itself may not be palpable.

The purpose of this paper is to emphasize the significance of the pseudolipoma and to explain its formation.

Clinical Features

Pseudolipomas have been found in patients aged 36 to 81 years, but most have occurred in post-menopausal women (see Table). The diameter has varied from 1 to 8 cm., a variation depending on the type and number of cancers or whether the cause was duct ectasia.

No swelling under the pseudolipoma could be felt in three patients, an indefinite swelling was palpable in four, and a definite swelling in 11 in whom a cancer was subsequently found. A definite swelling was felt in one of the patients with the underlying lesion of duct ectasia.

Details of Cases

Case No.	Age	Meno-pause	Length of History	Clinical Features					Pathological Features				
				Pseudo-lipoma Alone	Underlying Swelling		Firm Adherence to Skin	Lymph-nodes Palpable	Lymph-nodes Invaded	Type of Lesion	No. of Tumours	Diameter of Tumours	Diameter of Pseudolipoma
					Indefinite	Definite							
1	61	Post	38 yrs. lump, enlarging 2 mths.	-	-	+	-	++	-	Scirrhus cancer (contracted)	1	1.5 cm.	2.5 cm.
2	75	"	3 weeks	+	-	-	-	-	-	" " "	1	1.5 cm.	4.0 cm.
3	67	"	8 months	+	-	-	-	±	-	" " "	1	1.5 cm.	8.0 cm.
4	55	"	1 month	-	-	+	+	-	+	" " "	1	2.0 cm.	2.5 cm.
5	56	"	1 year	-	-	+	-	++	+	" " "	1	2.5 cm.	3.5 cm.
6	71	"	5 years	-	-	+	-	-	+	Scirrhus and diffuse cancer	1	Scirrhus 2 cm. Diffuse 6 cm.	6 x 7 cm.
7	69	Post	3 months	-	+	-	-	-	-	Cancerous plaque (contracted)	1	1.0 x 0.5 cm.	1.5 cm.
8	41	Pre	3 months	-	-	+	-	-	-	" "	1	5.0 x 1.5 cm.	6.0 cm.
9	59	Post	2 months	-	+	-	-	-	-	Plaques	2	2.5 x 0.5 cm. 1.5 x 0.5 cm.	5.0 cm.
10	36	Pre	1 year	-	+	-	-	-	+	"	2	2.0 x 0.5 cm. 2.0 x 0.5 cm.	5.0 cm.
11	50	Post	1 year	-	-	+	+	-	+	Multiple scirrhus (contracted)	2		3.0 cm.
12	42	Pre	6 months	-	-	+	-	-	-	" "	3		4.0 cm.
13	44	"	6 years	+	-	-	-	-	+	" "	3		8.0 cm.
14	58	Post	1 year	-	+	-	-	++	+	" "	4		4.0 cm.
15	50	"	1 month	-	-	+	+	-	+	" "	7		6.0 cm.
16	81	Post	2 months	-	-	+	-	±	-	Inflamed expanded cancer	1	2.0 cm.	3.5 cm.
17	59	"	7 months	-	-	+	-	-	-	" "	1	6.0 cm.	1.0 cm.
18	64	"	3 months	-	-	+	-	±	+	" "		4.0, 0.5 cm.	1.0 cm.
19	40	Pre	3 months	+	-	-	-	-	-	Duct ectasia			6.0 cm.
20	62	Post	37 years	-	-	+	-	++	-	" "			5.0 cm.
21	54	"	1 year	+	-	-	-	-	-	" "			3.0 cm.

All the cancers found in association with the pseudolipomas were invasive cancers. A single tumour was found in 10 breasts and multiple tumours in eight.

Axillary lymph-nodes were obviously enlarged in three of the cancer group and in one of the duct-ectasia group. Nodes were palpable by some observers in a further three cases of the cancer group. Histology showed lymph-node invasion in three of these six cancer cases and invasion in six others where no observer had felt the nodes. The Table shows the inconsistency between the clinical and histological findings of lymph-node involvement and emphasizes that the clinical interpretation of palpable nodes can be most misleading.

Pathological Features and Mechanisms of Production of the Pseudolipoma

When a breast containing a pseudolipoma is examined in the laboratory the sliced surface of the pseudolipoma shows the fibrous septa running from the breast lesion to the overlying skin as well-defined strands fanning out from their basal anchorage, and the fat between the septa bulges out as distinct swellings. This appearance is quite different from that of the subcutaneous fat and fibrous septa in the normal breast, for, when it is sliced, separate masses of fat and the fibrous septa are barely evident; the subcutaneous layer is almost homogeneous.

It is to be expected that different mechanisms, some of which may overlap, will be found to explain the formation of the pseudolipoma by differing varieties of cancer and by the innocent condition of duct ectasia.

Two cancer types were concerned—contracted cancers in 15 and inflamed expanded cancers in three.

The contracted cancers were scirrhus cancers. They were hard tumours slicing with a gritty sensation to reveal a grey surface mottled with yellow streaks. The cut edge was sharp and usually irregular, varying from a slight peripheral scalloping to a stellate appearance. The word "scirrhus" which refers primarily to the hardness of the tumour does not entirely describe these macroscopic features. Other breast cancers which are not contracted, such as the squamous cancer, are also hard and may cut like an unripe pear. Contracted scirrhus is a better descriptive term.

The feature which accounts for the physical signs of the contracted scirrhus is a slowly progressive degeneration and absorption of its central core, its blood supply being strangled by pressure of the surrounding growth. The tumour collapses, but at the same time continues to infiltrate at the periphery so that surrounding tissue appears to be drawn into the tumour. Eventually the contracted cancer occupies a far smaller volume than that of the tissue it has infiltrated (Jackson and Orr, 1957; Bonser, Dossett, and Jull, 1961, p. 366).

Histologically the contracted cancers were all compact adenocarcinomas in various grades of differentiation. Their part in the formation of the pseudolipoma is discussed under three headings: (a) solitary contracted scirrhus cancers; (b) contracted scirrhus plaques; and (c) multiple contracted scirrhus cancers. Other mechanisms are discussed under (d) expanded or non-contracted cancers, and (e) duct ectasia.

Solitary Contracted Scirrhus Cancers

When the scirrhus cancer involves the superficial plane of the breast tissue and shrinks, it draws together the fibrous septa which are attached to its surface, so reducing the distance between their attachments (Fig. 1, A and B). This change in the basal anchorage of the fibrous septa reduces the volume of the fat-filled compartments between the septa so that the

fat is compressed and pushed upwards, bulging the skin between the points of attachment of the fibrous septa.

In this group (Table, Cases 1 to 6) the cancers varied from 1.5 to 2.5 cm. in diameter and the pseudolipomas were always larger. Fig. 3 shows the degree of distortion of the fibrous septa and fat produced by a small contracted cancer.

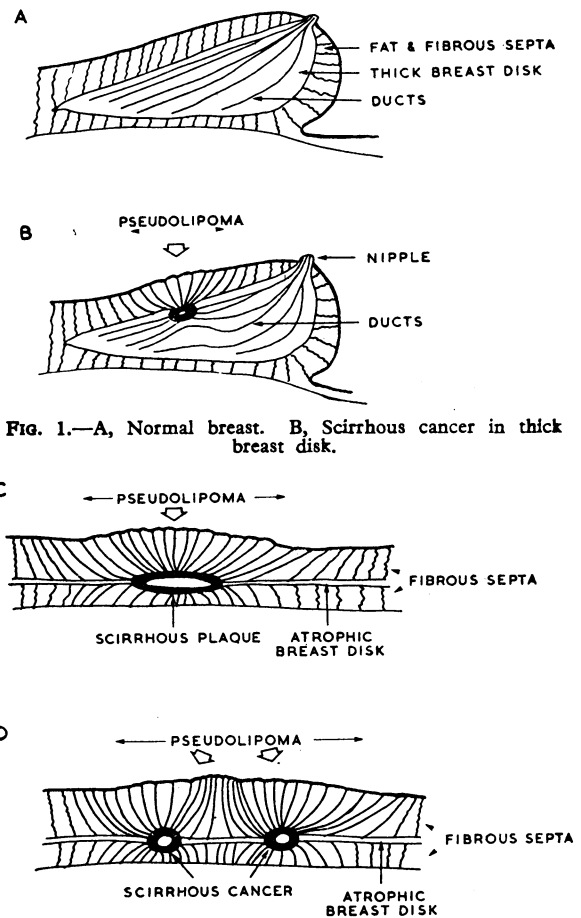


FIG. 1.—A, Normal breast. B, Scirrhus cancer in thick breast disk.

FIG. 2.—C, Scirrhus plaque. D, Multiple scirrhus cancers.

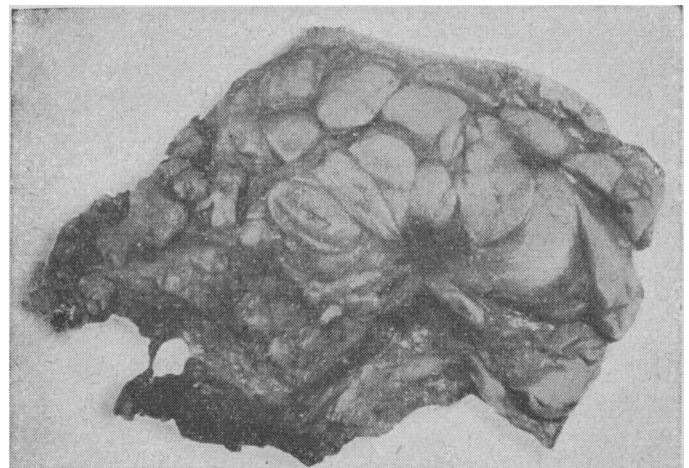


FIG. 3.—Case 3. Pseudolipoma 8 cm. in diameter over a contracted scirrhus cancer 1.5 cm. in diameter. The fibrous septa are drawn towards the tumour and the fat bulges out between them.

Contracted Scirrhus Plaque or Plate

Although the contracted scirrhus plaque is an uncommon tumour, it often produces a pseudolipoma. It has a surface area which is large and disproportionate to its bulk. The tumour arises from an extensive intraduct cancer in which

lateral branches of the duct are involved. The cancer infiltrates at multiple adjacent points to produce a large number of tiny contiguous cancers which coalesce to form a plaque which then undergoes central necrosis and shrinkage in the manner of a contracting cancer, crowding the fibrous septa over the surface to produce the pseudolipoma (Fig. 2, C).

Because of their shape these plaques are often impalpable, and only an indefinite thickening was felt beneath the pseudolipoma in three of the four cases with this tumour (Table, Cases 7 to 10).

Multiple Contracted Scirrhus Cancers (Figs. 2D and 4)

Multiple contracted cancers are found more often in the presence of a pseudolipoma than in an unselected series of breast cancers. Bonser *et al.* (1961, p. 381) found multiple cancers in 10% of 220 cancers of the breast, yet in our series of 18 cancers with pseudolipomas the cancer was multiple in eight (44%). All the cancers in one breast do not necessarily take part in the formation of the pseudolipoma, but more than one cancer contributed to its formation in seven (38%) (Table, Cases 11 to 15).

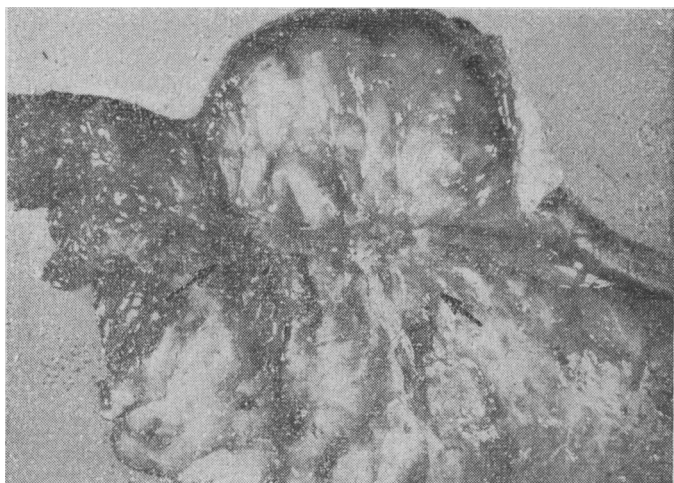


FIG. 4.—Case 15. Two scirrhus cancers, shown by arrows, contributing to the formation of the pseudolipoma, which produced a marked deformity of the breast surface. Five other cancers were present, but are not shown in the figure, only one of them contributing to the formation of the pseudolipoma.

Although the pseudolipoma is most constantly caused by the contraction of the scirrhus cancer there is a further possible causal factor. The fibrous septa may be shortened by their incorporation into the growing cancer, but this was found only in three cases where the skin was densely adherent at one point to the underlying palpable tumour.

Expanded or Non-contracted Cancers

The expanded tumour when sliced shows a smooth surface and, because it is expanded, appears almost encapsulated. There are often areas of necrosis (usually acute), but there is no significant collapse of the tumour on to the necrotic areas. Such cancers may be hard or soft, depending on the type. In the three cases discussed here (Table, Cases 16 to 18) they were inflamed dedifferentiated cancers. Squamous, colloid, and adenocarcinomas which also produce expanding tumours were not encountered.

The inflamed expanded cancers were composed of irregular masses of dedifferentiated cancer cells separated by large accumulations of chronic inflammatory cells in a loose fibrous stroma. A similar wide zone of inflammatory cells surrounded

the tumour and continued around blood-vessels and lymphatics through the pseudolipoma up to the dermis. There was no carcinomatous infiltration of the fat, fibrous septa, or skin. It is concluded that inflammatory oedema produced increased interseptal tension necessary for the formation of the pseudolipoma.

Duct Ectasia

Duct ectasia begins as a chronic inflammatory process in the duct wall which damages the myo-epithelial and elastic layers and allows the duct to dilate. Secretion accumulates because of destruction of the subepithelial lymphatic plexus (Bonser *et al.*, 1961, p. 24). The dense collagenous tissue which is progressively laid down in the inflamed zone may contract, producing nipple retraction or, more rarely, a pseudolipoma by interference with the fibrous septa.

Duct ectasia is a common condition, being found in 181 of this series of 480 breast lesions. A pseudolipoma caused by duct ectasia has been found on only three occasions. Duct ectasia is always most severe in that part of the duct towards the nipple, where branching of the duct is minimal; it often involves separate duct systems, leaving normal ducts interspersed, and so the total area of inflammation is usually small. An area of scar tissue large enough to cause interference with the fibrous septa will be produced only when the initial inflammation is severe. It must involve several adjacent contiguous and superficial duct systems, over a considerable length, and must have spread outside the duct wall to the surface of the breast tissue. It is uncommon for all these conditions to be fulfilled.

Case 19.—A woman aged 40 had for three months noticed progressive retraction of the nipple. In addition to the retracted nipple there was a pseudolipoma, 6 cm. in diameter, extending upwards from the margin of the areola. Examination of the mastectomy specimen revealed beneath the pseudolipoma dilated ducts from which large worm-like casts of brown pultaceous material could be expressed. Histology showed inflammation with dense fibrosis spreading outside the duct walls from the nipple to the periphery of the breast substance.

Case 20.—A woman of 62 presented with a yellow discharge from the nipple, noticed for 10 days. The nipple had retracted after a pregnancy when she was aged 25, and at the age of 40 deep x-ray therapy had been given for painful nodular breasts, and telangiectasia was evident in the skin. The breast had felt heavy for three years and was larger than the other; a large pseudolipoma was present over the upper half of the breast, and an irregular hard tumour, 3 cm. in diameter, was situated eccentrically beneath the nipple. A dry red eczematous rash was present over most of the breast, being maximal near the nipple. Axillary nodes were large and hard. It was with much surprise that histological examination revealed duct ectasia with severe fibrosis and calcification around widely dilated ducts, involving the whole breast but maximally beneath the nipple, and no cancer was found.

Discussion

In this series of 147 infiltrating cancers about 25% of the tumours showed severe contraction, yet the pseudolipoma formed in only 12%. It is evident that many contracted scirrhus cancers do not produce a pseudolipoma. Whether or not a contracted scirrhus produces a pseudolipoma depends on its size, the volume of tissue infiltrated and the extent to which this is reduced by shrinkage, and the area of the tumour emerging from the superficial surface of the breast tissue. A very small yet severely contracted tumour, or a large tumour with only mild contraction, will produce insufficient crowding of the fibrous septa for the production of a pseudolipoma. Similarly, a scirrhus cancer starting in the substance of a thick breast will produce little contraction of the surface compared with one arising on the surface or in a thin breast

disk. The distribution of pseudolipomas by age-groups emphasizes the importance of the thickness of the breast disk. The pseudolipomas were found in four pre-menopausal and 14 post-menopausal women with cancer, a ratio of 1 to 3.5. This ratio is far higher than the ratio of 1 to 1.8 for the pre-menopausal to post-menopausal distribution of cancer found by Bonser *et al.* (1961, p. 351) in a series of 220 unselected breast cancers. The breast substance is 2 to 4 cm. thick in the pre-menopausal woman, but after the menopause it is often reduced to a thin sheet, less than 0.5 cm. in thickness. Clearly the cancer which starts in the thin post-menopausal breast can more readily affect the overlying fibrous septa.

Although carcinomatous infiltration of the fibrous septa has been observed in this series it plays little part in the production of the pseudolipoma. When it occurs it produces firm adherence of the skin to the tumour.

The oedema produced by the chronic inflammatory reaction in and around the expanded cancers seems the likely explanation of the production of the overlying pseudolipoma. When oedema is produced by severe or acute inflammation it may be so intense that oedema of the skin results.

A swelling which was sufficiently defined to be easily felt under the pseudolipoma was found in 11 out of 18 cases, but a confident diagnosis of cancer could not have been made from physical examination except in three of these where the overlying skin was adherent. When an indefinite swelling was present under the pseudolipoma the cancer could have been entirely missed, and there were three patients with cancer in whom the only physical sign was the pseudolipoma. Conversely, in one of the patients in whom duct ectasia had produced a pseudolipoma involving nearly the whole of the upper part of the breast a definite swelling was palpated near the nipple and hard axillary nodes were felt.

The finding of a pseudolipoma must be regarded as a signal that cancer is likely to be present. If the pseudolipoma is recognized directly over a readily palpable swelling and is symmetrically placed over that swelling, then the lesion is a cancer, and whatever treatment is preferred may be instituted. If the underlying tumour is diffuse or eccentrically placed, and if the pseudolipoma occupies an area much larger than that of the palpable underlying tumour, then the diagnosis can be made only by surgical exploration.

Summary

A subcutaneous swelling presenting clinically as a lipoma but differing pathologically is described, and is labelled a pseudolipoma.

The pseudolipoma has been found 21 times in a series of 480 breast conditions.

It was associated with single or multiple underlying cancers in 18 patients and with duct ectasia in three.

The mechanisms of its production by different forms of invasive cancer are described and the age incidence of the condition is explained.

Its importance as a sign of impalpable cancer is stressed and its value in the positive clinical diagnosis of cancer assessed.

We are indebted to Dr. Georgiana M. Bonser for stimulating and guiding our interest in the details of breast diseases.

REFERENCES

- Bonser, Georgiana M., Dossett, J. A., and Jull, J. W. (1961). *Human and Experimental Breast Cancer*. Pitman, London.
Jackson, J. G., and Orr, J. W. (1957). *J. Path. Bact.*, **74**, 265.

Results of Family-orientated Therapy with Hospitalized Schizophrenics

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This is a report on the results of conjoint family and milieu therapy with hospitalized schizophrenics at two mental hospitals in the Greater London area. During the past 10 years the internal family milieu of schizophrenics has been intensively studied by workers in the United States—for example, Bateson *et al.* (1956), Lidz *et al.* (1958), and Wynne *et al.* (1958)—and by ourselves (Laing and Esterson, 1964). These studies, which have shown how frequently the person diagnosed as schizophrenic is part of a network of extremely disturbed and disturbing patterns of communication, have important implications for prevention, treatment, and aftercare.

As a result of this work and that of psychotherapists with experience of prolonged relationships with schizophrenics increasing doubt has been cast on the view that schizophrenia is a medical syndrome or entity in any sense currently employed in ordinary medical practice. This work has also rationalized a form of therapy which does not focus on the individual patient but on the group or system of communications of which he is part, whether within his family or within the mental hospital.

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Principles of Method

Details of our method of family and group study and treatment of the person diagnosed as schizophrenic will be described in subsequent publications.

Very briefly, the principles we have followed are: (1) A systematic clarification and undoing of patterns of communication that we take to be "schizogenic" within the family. (2) A similar clarification and undoing of such patterns of communication between patients and between staff and patients. (3) Continuity of personnel working with the family during and after the patient's stay in hospital. (4) No individual psychotherapy was given. (5) None of the so-called shock treatments were used, nor was leucotomy. Patients received comparatively small doses of tranquillizers. For instance, no male patient received more than the equivalent of 300 mg. of chlorpromazine, and 25% of patients received no tranquillizers at all. Less than 50% of the women and 15% of the men received tranquillizers during the follow-up period.

A schizophrenic who is admitted to hospital is handicapped to a greater or less degree in his ability to live under ordinary social conditions. It is necessary to provide a social setting