South African Medical Journal : Suid-Afrikaanse Tydskrif vir Geneeskunde

Cape Town, 18 June 1960 Volume 34 No. 25 Deel 34 Kaapstad, 18 Junie 1960

ADENOCARCINOMA OF THE BREAST IN A SOUTH AFRICAN BANTU BOY AGED FOURTEEN

H. FESTENSTEIN, M.B., CH.B. (CAPE TOWN), *Department of Histopathology, South African Institute for Medical Research, Johannesburg*

Primary adenocarcinoma of the breast is extremely rare in boys. Only 4 well-authenticated cases of a younger age than the present case have been traced; the ages were 12,[1] 13,[2] 6,[3] and 12 years,[4] respectively. In addition, a case has been reported in a boy aged 14 years and 8 months.[5] The present case is believed to be the first reported in a South African Bantu boy.

CASE REPORT

The patient was referred from Potgietersrust to the Groothoek Mission Hospital in the Northern Transvaal on 5 May 1958, where he came under the supervision of Dr. G. C. C. Burger. The provisional diagnosis on admission was pulmonary tuberculosis with an effusion at the base of the left lung. The patient was not able to give his exact age, but this was independently estimated to be 14 years by at least 3 practitioners at the hospital experienced in African practice. He was pubertal.

On examination, a moderate degree of bilateral gynaecomastia was found. In addition, a small freely mobile hard mass was palpated in the right breast. The presence of a small pleural effusion at the base of the left lung was confirmed, but there was no further support for the diagnosis of pulmonary tuberculosis. The liver was palpated 2 fingers below the right costal margin. There was evidence of loss of weight, pallor and haematuria. Bilharzia was diagnosed by rectal biopsy. No other significant physical signs were elicited.

An excision biopsy of the right breast was performed in June 1958.

During the 2 months following admission the pleural effusion extended to involve the whole of the left pleural cavity. The liver, the surface of which felt smooth, enlarged further, and became palpable at 4 fingers' breadth below the right costal margin. The haematuria soon disappeared and did not recur.

The patient died on 14 July 1958. Permission for autopsy was refused.

Report on Excision Biopsy

Macroscopic. A smooth, well defined, oval, white, hard mass measuring 2·5 cm. in its greatest diameter (Fig. 1), was received for

Fig. 1. Macroscopic view of cut surface of tumour. Scale in mm.

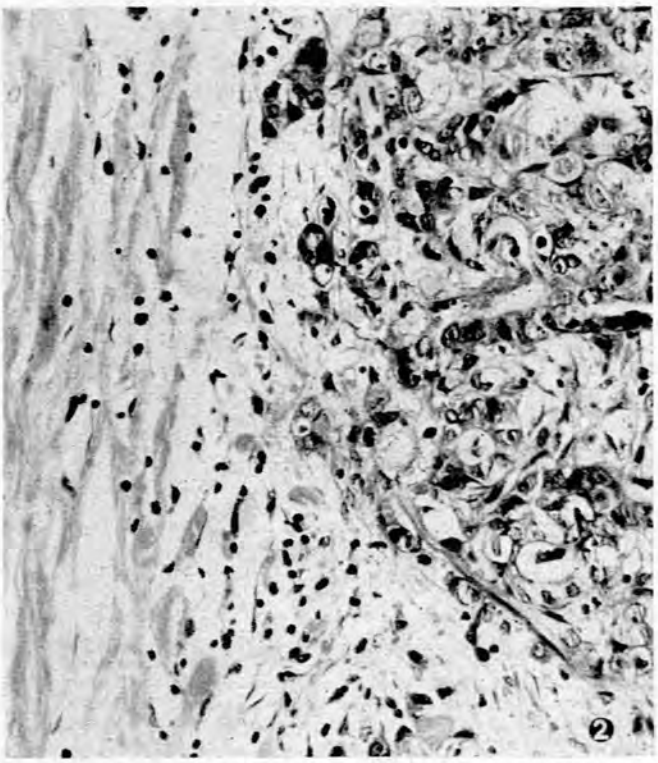

Fig. 2. View through tumour showing relationship to surrounding tissue. (× 240).

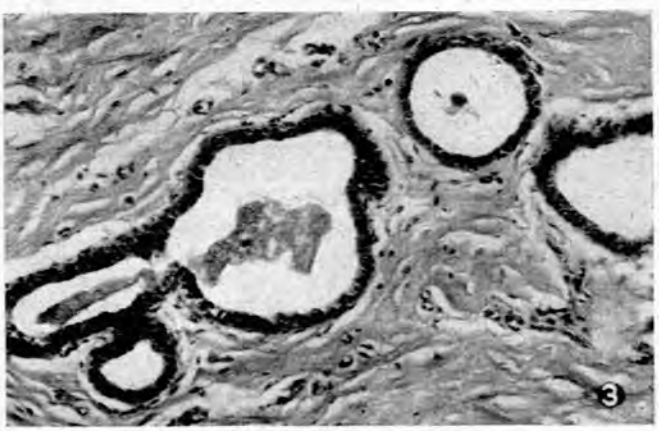

Fig. 3. View through edge of tumour showing dilated mammary ducts. (× 120).

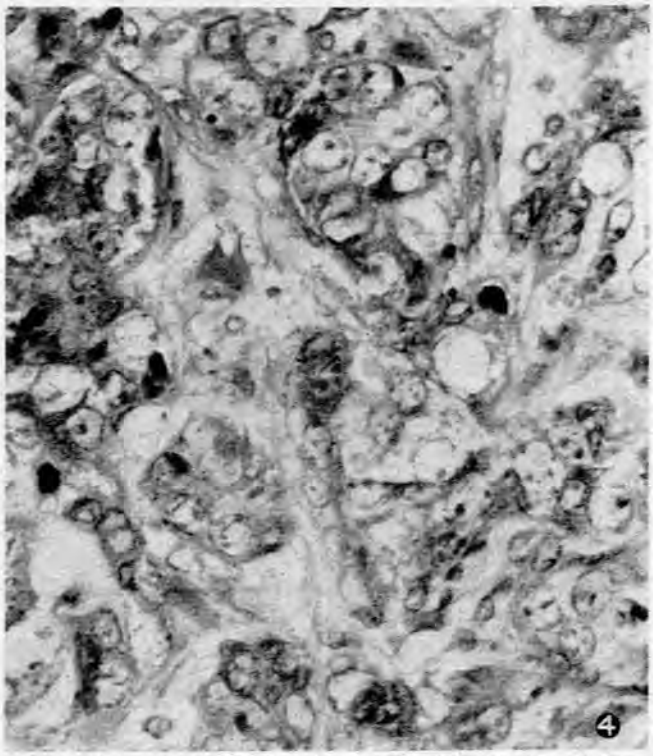

Fig. 4. High power (× 480) through centre of neoplasm showing mitotic figures and large vacuolated cells with prominent nuclei and nucleoli.

examination by the South African Institute for Medical Research, Johannesburg. The specimen felt hard and gritty on being cut with a knife. The cut surface was white and fibrous, with faint yellowish streaks.

Histology. Microscopic section (Fig. 2) showed a poorly differentiated epithelial neoplasm, surrounded by a rim of fibro-fatty tissue in which dilated ducts were present. The cells of the tumour were arranged in cords and contained numerous mitotic figures (Fig. 4). Many of the cells contained clear vacuoles and large deeply-staining nuclei with prominent nucleoli. Lumina were observed and there was a marked fibrous tissue reaction of the stroma in places. There was a minimal amount of adipose tissue present. Dilated mammary ducts with hyperplasia of the duct epithelium and surrounding stroma were seen at the edges of the tumour (Fig. 3). The histological features were those of a poorly differentiated adenocarcinoma in a breast which was the seat of a moderate degree of gynaecomastia.

DISCUSSION

1. *Oestrogens and Breast Cancer*

Oestrogen excess has been implicated as an aetiological factor in breast cancer. Experimental work by Loeb,[6] Murray[7] and Lacassagne[8] has shown a relationship between oestrogen excess and cancer of the breast in mice.

Goodall[9] states that there are 7 well-documented cases of primary cancer of the male breast in human patients following stilboestrol therapy. This has been questioned by Moulton[10] in his report of a case of mammary neoplasia in a male receiving oestrogen therapy for carcinoma of the prostate. He believes that such cases are much more likely to be metastatic from the prostate than primary breast cancer.

2. *Oestrogens, Gynaecomastia and Carcinoma of the Breast in Africans*

Oestrogen excess in males is an undisputed factor in the aetiology of gynaecomastia. The African male is reported to excrete more oestrogens than White South Africans (Bersohn and Oelofse,[11] Blumberg *et al.*[12]). Of a series of autopsied Johannesburg African males 34% were found to have some degree of gynaecomastia.[13]

In a series of Johannesburg Africans, Higginson and Oettle[13] found 2 cases of breast cancer in males and 49 in females; the incidence of African male breast cancer was not significantly different from that expected, when compared with corresponding figures for the USA.

On the basis of these data, therefore, admittedly based on relatively few cases drawn from a restricted area, there appears to be no correlation between the incidence of male breast cancer and gynaecomastia. This is in accordance with the view of Foot and Stewart[14] and Moore *et al.*[15]

3. *Sex and Age*

Somerville,[16] in his own series of 19 cases of male breast cancer, found the average age of presentation to be 55·2 years.

Breast cancer has been reported[17-21] in girls of 12, 11, 11, 10 and 10 years of age, making a total of 5 cases under the age of 15 years. In male children in the same age group, a total of 6 cases (including the present one) have now been reported.

From these data it appears that there is no significant sex difference in the incidence of primary breast cancer among children. Most of the affected children were either pubertal or approaching puberty.

It should be noted that despite the rarity of carcinoma of the breast, gynaecomastia is common in pubertal boys.[22]

SUMMARY

1. A case is reported of breast adenocarcinoma in a South African Bantu boy suffering from gynaecomastia.

2. The relative incidence of cancer of the breast in male and female African Bantu and various White populations is reviewed.

3. Although oestrogens are known to cause gynaecomastia and have been implicated in the aetiology of breast carcinoma, a consideration of the literature lead to the conclusion that in the present case the gynaecomastia and carcinoma were not causally related.

My thanks are due to Drs. G. C. C. Burger and J. N. du Plessis of the Groothoek Mission Hospital, who provided the clinical details of this case, and to Dr. E. H. Cluver, Director of the South African Institute for Medical Research, for facilities granted.

REFERENCES

1. Blodgett, A. N. (1897): Boston Med. Surg. J., **136**, 611. Quoted by Simmons, *loc. cit.*[2]
2. Simmons, R. R. (1917): J. Amer. Med. Assoc., **68**, 1899.
3. Hartman, A. W. and Magrish, P. (1955): Ann. Surg., **141**, 792.
4. Sachs, M. D. (1941): Radiology, **37**, 458.
5. Bryan, R. C. (1914): Surg. Gynec. Obstet., **18**, 545.
6. Loeb, L. (1919): J. Med. Res., **40**, 477.
7. Murray, W. S. (1928): J. Cancer Res., **12**, 18.
8. Lacassagne, A. (1936): Amer. J. Cancer, **27**, 217.
9. Goodall, A. L. (1956): Scot. Med. J., **1**, 308.
10. Moulton, J. E. (1959): Med. J. Austral., **1**, 706.
11. Bersohn, I. and Oelofse, P. J. (1957): S. Afr. Med. J., **31**, 1172.
12. Bloomberg, B. M., Miller, K., Keeley, K. J. and Higginson, J. (1958): J. Endocr., **17**, 182.
13. Higginson, J. and Oettle, A. G. (1957): Acta Un. Int. Cancr., **13**, 949.
14. Foot, F. W. and Stewart, F. W. (1945): Ann. Surg., **121**, 197.
15. Moore, G. F. *et al.* (1945): J. Amer. Med. Assoc., **127**, 60.
16. Somerville, P. (1952): Brit. J. Surg., **39**, 296.
17. Levings, A. H. (1917): Amer. J. Surg., **21**, 29.
18. Puente Duany, N. and Garciga Ramirez, C. E. (1951): Arch. cuban. Cancer., **10**, 36. Quoted by Hartman *et al.*, *loc. cit.*[3]
19. Thompson, W. H. (1908): Brit. Med. J., **2**, 502.
20. Sears, J. B. and Schlesinger, M. J. (1940): New Engl. J. Med., **223**, 760.
21. Smithy, H. G. and Charleston, S. C. (1944): Surgery, **16**, 854.
22. Anderson, W. A. D. (1957): *Pathology*, 3rd ed. p. 1105. St. Louis: Mosby.