BRENNER TUMOUR OF THE OVARY

(Report of 2 Cases with Review of Literature)

by

V. H. TALIB,* M.D.,

ZAKIA SULTANA,** M.B.B.S.

and

S. D. PATIL,*** M.D.

Introduction

The fact that Brenner tumour is the only ovarian tumour known only by its eponym underscores our lack of knowledge of its true nature. Credit for this has been given to Brenner (1907) although several reports of similar tumours had been made before Brenner's description of 3 cases (Macnaughton Jones, 1898; Fothergill, 1902; Hellier and Smith, 1702). Most reports have been concerned with the histogenesis of these tumours and a great volume of literature has accumulated on the subject. They were originally thought to arise from follicular cells—'Oophoroma folliculare' (Brenner, 1907), 'Folliculoma ovarii' (Ingier, 1907), 'Egg-like cells in solid ovarian tumours' (Fothergill, 1902), but Meyer (1932) drew attention to the similarity of these tumours to the Walthard nests found in the cortex of some ovaries, and this has been accepted by most authors as the source of origin of these tumours. Schiller (1936) suggested that some Brenner tumours might arise by 'dislocation' into the ovary of the germ cells which primarily belonged to the urinary system, while Greene (1951) thought that they might have several modes of origin, including the ovarian stroma, the rete ovarii. The most popular theories today suggest that the tumor originates from either coelomic ovarian surface epithelium either directly (Lauchlan, 1966) or by the intermediary development of Walthard rests (Danforth, 1942) or Wolffian (Rete), epithelium (Berge and Borglin, 1967). Sternberg (1963) has combined these theories by postulating an origin from urothelial (mesonephric) metaplasia of surface epithelium.

Two cases of Brenner tumour, diagnosed at Medical College and Hospital, Aurangabad, during the year 1971 are reported because of its rare occurrence and controversial histogenesis.

Case 1

N.N., 35 years old female was admitted to Medical College Hospital, Aurangabad. with the complaints of a lump in the abdomen since 4 years. Her previous menstrual history was normal. She had 2 full term deliveries, last about 5 years back. On abdominal examination, there was a lump in the lower abdomen about 5" x 6" hard in consistency, freely mobile and could be shifted to any quadrant of the abdomen. Vaginal examination was normal. All

*Lecturer in Pathology.
**Lecturer in Pathology.
***Reader in Pathology.
Department of Pathology, Medical College, Aurangabad (Maharashtra).

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routine investigations, urine, blood, skiagram of abdomen and chest revealed no abnormality. Clinically diagnosed as tubo-ovarian mass.

Laparotomy was done, there was no free fluid in the abdomen. There were no adhesions. The tumour was solid, arising from the left ovary and had a small pedicle. Other ovary was normal. The tumour was excised and panhysterectomy was done. The patient made an uneventful recovery.

Pathology

The gross specimen (Fig. 1) consist of a large lobulated mass measuring 4″ x 3″ x 2″ and weighing 600 gms. The external surface was gray-white, smooth. and glistening. The cut surface (Fig. 2) showed a homogenous appearance and well encapsulated solid mass of fibroma like consistency.

On microscopic examination the mass showed the characteristic nests (Fig. 3) or columns of transitional epithelial cells embedded in the connective tissue. Cells were fairly big in size with clear or fairly granular cytoplasm. The nuclei were central, round or oval (Fig. 4). many showing the classical grooved appearance. No mitotic activity was seen, either in the epithelial islands or in the stroma.

Case 2

A 70 years old woman was admitted to the hospital because of vaginal bleeding of 3 days duration. Menopause occurred 22 years prior to admission. Several weeks prior to hospitalization she had consulted a physician because of lower abdominal pain. Examination at the time of admission showed a palpable tender mass of roughly 6″ diameter in the lower abdomen. Pelvic examination showed advanced pelvic relaxation and blood in the vaginal vault and cervical os.

Laboratory and x-ray examinations were within normal limits.

She underwent a total abdominal hysterectomy and bilateral salphingo-oophorectomy. Her postoperative course was uneventful. She was well without evidence of tumour one year after surgery.

Pathology

The gross specimen consisted of the uterus, both ovaries and fallopian tubes. The left ovary was replaced by a bosselated mass that measured 6″ x 4″ x 3″. The external surface was gray-yellow and glistening (Fig. 5). The cut surface (Fig. 6) showed solid and cystic areas. The cystic areas were filled with mucus, and the solid area was homogenous and firm in consistency.

On microscopic examination, the cells of the epithelial nests showed the usual ovoid to polygonal shape, with small. ovoid, vesicular nuclei (Fig. 7) and voluminous clear or granular, acidophilic cytoplasm with sharply defined cell borders. Although these cells resemble those of squamous epithelium, no intercellular bridges or foci of keratinization were seen. At places cystic epithelial cell nests were observed surrounded by dense cellular fibrous stroma (Fig. 8).

Discussion

Ming and Goldman stated in their 1962 literature review of Brenner tumours that 'the vast majority of the reported cases of Brenner tumour consist of small tumours found incidentally in young women. However, the incidence has been higher in older women in many reported series (Berge and Borglin, 1967; Jorgensen *et al*, 1970; Woodruff and Acosta, 1963). Thus, the average age among the 36 patients of Berge and Borglin, 1967 was 56.5 with 70 per cent of the patients over 50 years of age. In the series of 53 cases reported by Jorgensen *et al*, 1970, 53 per cent were postmenopausal and the average age was 53.4 years, and among Woodruff and Acosta's (1963) 90 patients, 61 per cent were over 50 years old. In the series of 54 cases reported by Silverberge (1971) only 31.5 per cent were postmenopausal, and the average age was 46.2 years.

Brenner tumour comprises only 1.7 per cent of all ovarian tumours (Hertig and

Gore, 1961). There are few large series reported from any single institution (Edward *et al,* 1970, 53 cases; Woodruff and Acosta, 1962, 90 cases; Lauchlan, 1966, 13 cases; Silverberg, 1971, 60 cases). Very few case reports are recorded from India, (Sirsat, 1956; Patil *et al,* 1967; Tyagi *et al,* 1967; Vora and Bhargava, 1969; Mutatkar *et al,* 1970; and Ramachandran *et al,* 1972). The incidence of bilaterality was reported by Silverberg (1971) as 3.7 per cent and 7.0 per cent by Jones, (1966) and Jondahl *et al,* (1950). Shay and Janovski (1963) reported 15 malignant cases among 400 Brenner tumours that they reviewed.

The association of Brenner and mucinous tumours is widely accepted, although there is uncertainty as to the sequential origin (Novak and Woodruff, 1967; Woodruff and Acosta, 1961; Mackinelay, 1956). Of the two present reported cases, case 2, was associated with psudomucinous cystadenoma. Ramachandran *et al* (1972) reported 3 cases of Brenner tumour associated with psudomucinous cystadenoma and reported its incidence as 0.33 per cent out of 903 ovarian neoplasms studied. Tyagi *et al* (1967) had only one case in their series of 120 cases. Vora and Bhargava (1969) state that the large Brenner tumours are associated with mucinous cystadenoma. Similar observation was observed by us.

The possibility that Brenner tumours might have an endocrine effect has aroused interest in recent years. Of the two cases reported, one case presented with vaginal bleeding in association with Brenner tumour. Endometrium showed hyperplasia. The view expressed by Novak and Woodruff (1967) that these tumours do not have any hormonal influence is the one generally accepted. Many reports of vaginal bleeding in association with Brenner tumours have been recorded, but this bleeding has usually been attributed to factors other than Brenner tumours (Novak and Jones, 1939; Jondahl *et al,* 1950). More recently, attention has been drawn to the similarity of the stroma in the Brenner tumours to that in thecomata and the finding of refractile fat (Biggert and Macafee, 1955) in some tumours has made this similarity even greater.

In several large series of Brenner tumours, the incidence of associated endometrial hyperplasia was 4 to 14 per cent (Berge and Borglin, 1967; Biggart and Macafee, 1955; Farrar *et al,* 1960; Jondahl *et al,* 1950; Teoh, 1953). In post menopausal women, the incidence was 7 to 25 per cent (Berge and Borglin, 1967; Farrer *et al,* 1960).

Evidence presented by Ehrlich and Roth (1971) and the literature indicates an association of Brenner tumours with endometrial hyperplasia, especially in postmenopausal women. This association was observed in one case in the present series, may be coincidental and endometrial hyperplasia may occur in the absence of any demonstrable cause, and many Brenner tumours are found incidentally during treatment of endometrial disorder (Ehrlich and Roth, 1971). The stroma of the majority of the Brenner tumours associated with hyperplasia does not seem capable of producing significant quantities of steroid hormones (Tighe, 1961). Neverthless, there is strong circumstantial evidence that suggests endocrine function by the stroma of Brenner tumours on occasions (Silverberg, 1971). Thus investigations of new cases is required before any firm conclusions can be drawn.

Summary

Two cases of Brenner tumours are re-

ported, in view of its rare occurrence and controversial histogenesis, with a brief review of literature.

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See Figs. on Art Paper IV and V