INCIDENCE OF OVARIAN TUMOURS AT ALIGARH WITH PARTICULAR REFERENCE TO HISTOPATHOLOGICAL TYPING

by

A. MADAN,* M.B.B.S.

S. P. TYAGI,** M.D.

SHAISTA MOHSIN,*** M.S.

FIROZA HAMEED,**** M.D.

and

RUQQAIYA RIZVI,***** M.S.

Ovary, a small organ, is responsible for giving rise to various types of tumours. These tumours are generally third in frequency in females, the first two being tumours of uterus and breast. Very often authors have reported these tumours from different parts of the Country (Gault *et al*, 1954; Agarwal and Saxena, 1962; Patil *et al*, 1964; Tyagi *et al*, 1967; Jagadeeswari *et al*, 1971 and Ramachandran *et al*, 1972).

Recently a new W.H.O. Classification (Serov *et al*, 1973) of ovarian tumours has been recommended which has revolutionized the understanding of the ovarian tumours. The present communication deals with 130 ovarian tumours with special reference to their histopathological typing according to W.H.O. Classification.

*Demonstrator in Pathology.

**Reader in Pathology.

***Prof. and Head of the Department of Obstetrics and Gynaecology.

****Lecturer in Pathology.

*****Reader in Obstetrics and Gynaecology.

From the Histopathological Section of the Department of Pathology, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh.

Accepted for publication on 6-7-1977.

Material and Methods

The present study comprised of 130 ovarian tumours obtained from 127 cases admitted to the Gynaecology Ward of Jawaharlal Nehru Medical College Hospital, Aligarh Muslim University, Aligarh, during the period of 1969 to June 1976. In 3 cases one type of tumour occurred in one ovary while the other ovary was harbouring a different tumour. In each case brief clinical history, extent of the tumour and its gross features were noted.

From every tumour at least 4 blocks from representative sites were taken for histopathology. Sections were cut at 4 to 5 μ thickness. Besides routine haemotoxylin and eosin stain, other special stains like Periodic-Acid-Schiffs (PAS), Van Gieson, Von Kossa, Reticulin and Best Carmine were employed to assess the nature of the tumour.

Observations and Comments

Out of the 127 patients, 71 (55.91%) were Hindus while the rest 56 (44.09%) were Muslims. Maximum cases (34.65%) belonged to the age group of 21 to 30 years; 115 cases (90.55%) were in the child-bearing period. Only 11 cases

(8.66%) were above 50 years and 1 (0.79%) was in the first decade.

The frequency of different types of ovarian tumours according to W.H.O. Classification has been shown in Table I and Graph I. The most common tumours were serous cystomas (31.54%), mucinous cystomas (19.23%) and benign cystic teratomas (18.46%).

TABLE I

Histological Typing of 130 Ovarian Tumours

Nature of Tumours	Number	Percentage
I. *Epithelial Tumours*		
Serous cyst adenoma	41	31.54
Serous cyst adenofibroma	1	0.77
Serous cystoma (Borderline Malignancy)	1	0.77
Serous cyst adenocarcinoma	3	2.30
Mucinous cyst adenoma	25	19.23
Mucinous cystoma (Borderline Malignancy)	4	3.08
Mucinous cyst adenocarcinoma	3	2.30
Endometroid carcinoma	2	1.54
Brenner tumour	2	1.54
Mesonephroid tumour	1	0.77
II. *Sex Cord Stromal Tumours*		
Granulosa cell tumour	5	3.85
Androblastoma	1	0.77
Sex cord tumour with tubular annulare	1	0.77
III. *Germ Cell Tumours*		
Dysgerminoma	4	3.08
Benign cystic teratoma (including 2 cases of Struma ovarii)	24	18.46
Benign Cystic teratoma with Squamous cell carcinoma	1	0.77
Malignant teratoma	1	0.77
IV. *Connective Tissue Tumours*		
Fibroma	1	0.77
Fibrosarcoma	2	1.54
V. *Metastatic Tumours*	7	5.38
Total	130	100.00

Relation to Gynaecological admissions and number of histopathological biopsies

The total number of gynaecological admissions in the hospital during the same period was 3876; thus the overall incidence of cases with ovarian tumours was 3.2%. In other institutions also the incidence has been reported to vary from 1.3% to 4.1% (Mehta and Purandare, 1964; Vora and Bhargava, 1969; Jagadeeswari *et al*, 1971).

The total number of histopathological specimens received in the Department of Pathology was 12,625; thus giving the incidence of ovarian tumours as 1.03% of all the biopsy tissues.

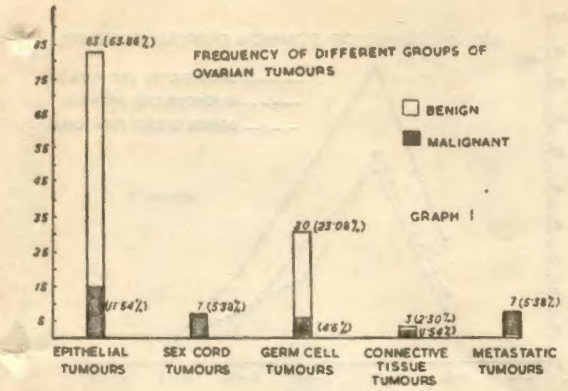

Fig. 1

Ovarian Malignancy in Relation to Ovarian Tumours

Broadly speaking, all the tumours were grouped into 3 categories depending upon the morphological nature of the tumour (Table II). For the sake of comparison with the observations of other workers the last two groups have been taken as malignant growths because the previous workers have divided their tumours into benign and malignant groups only. The overall incidence of malignancy in the present series was in accord with the observations of Chitkara and Sharma (1957-58), Mehta and Purandare (1964), Tyagi *et al* (1967) and Ramachandran *et al* (1972) as shown in Table III.

Relation to other malignancies

During the above mentioned period the number of total malignant growths diagnosed histopathologically was 823—the incidence of ovarian malignancy being 4.6% of all the malignant growths. At other centres the incidence has been

TABLE II

Morphological Character of the Ovarian Tumours

Nature of Tumour	Number	Percentage	
Benign	93	71.54	
Borderline Malignancy	5	3.85	28.46
Malignant	32	24.61	

TABLE III

Relative Incidence of Benign and Malignant Tumours of the Ovary as Reported by Different Workers

Author	Year	Number of Tumours	Frequency of Tumours	
			Benign	Malignant
Meyer	1931	—	85.1	14.9
Allan and Hertig	1949	—	84.8	15.2
Mitra	1955-56	646	84.2	15.8
Purandare and Patwardhan	1955-56	300	77.0	23.0
Chitkara and Sharma	1957-58	132	72.0	28.0
Agarwal and Saxena	1962	74	77.03	22.97
Mehta and Purandare	1964	149	71.9	28.1
Patil et al	1964	147	58.0	42.0
Tyagi et al	1967	120	75.83	24.17
Jagadeeswari et al	1971	265	64.15	35.85
Ramchandran et al	1972	903	68.98	31.02
Present Series	1977	130	71.54	28.46

found to vary from 1.5% to 11.4% (Jussawalla and Gangadharan, 1974; 1975).

It was further observed that the ovarian malignant growths constituted 8.75% of all the malignancies in females and 26.21% of all the malignant growths of female genital tract—a finding similar to that of Jagadeeswari *et al* (1971).

Age Incidence

The age incidence of benign and malignant tumours has been shown in Graph 2. The cases belonged to the age group

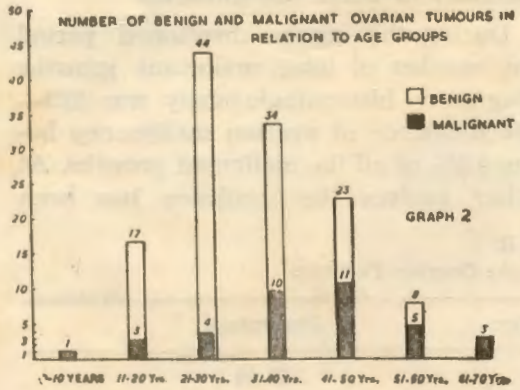

Fig. 2

of 10 to 70 years, maximum number of cases occurring in the third decade (34.65%). Other Indian workers have also reported a similar peak incidence (Mehta and Purandare, 1964; Tyagi *et al*, 1967; Vora and Bhargava, 1969; Jagadeeswari *et al*, 1971). Age incidence of common ovarian tumours is shown in Graph 3.

Benign tumours were more common in the 3rd and 4th decades (68.82%) as compared to malignant ones in the 4th and 5th decades (56.78%). The average age for benign tumours was 31.7 years—a decade earlier in relation to malignant growths (41.7 years). These findings were similar to the observations of Jagadeeswari *et al* (1971). The average age

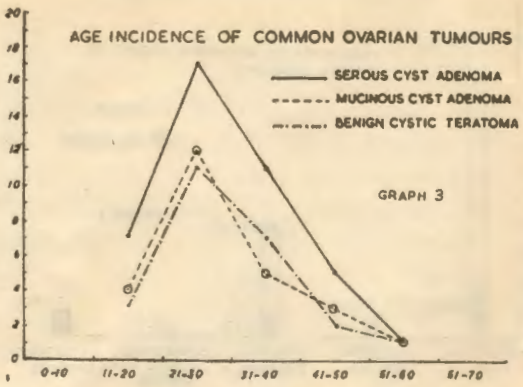

Fig. 3

for the common tumours of the ovary is shown in Table IV.

TABLE IV

Average Age of Common Ovarian Tumours

Nature of Tumour	Number of Cases	Age in Years
Serous cystadenoma	41	32.1
Serous cystadenocarcinoma	3	50.0
Mucinous cystadenoma	25	30.6
Mucinous cystadenocarcinoma	3	40.0
Granulosa cell tumour	5	45.4
Dysgerminoma	4	30.0
Benign cystic teratoma	24	30.3
Metastatic tumours	7	46.3

Marital Status and Parity

It was observed that 83.64% of the tumours occurred in parous women, 14.54% in nulliparous and 1.82% in unmarried girls. Moreover, benign tumours were more common in nulliparous (18.67%) as compared to malignant tumours (5.72%). These observations were contrary to the findings of Mehta and Purandare (1964).

Ovary Involved

In 11 tumours the site of involvement was not kown. In the remaining ones the left ovary was involved in 56 (47.0%),

right in 50 (42.00%) and in 13 the tumours were bilateral.

Consistency

Out of 130 tumours only biopsy tissue was obtained in 3 and in 7 the cons stency was not known. Among the remaining 120 tumours, solid tumours were 20 (16.66%), 77 cystic (64.17%) and 23 (19.17%) were partly solid and party cystic. Benign tumours were mos.ly cystic. Out of 86 tumours in which th consistency was recorded cystic tumours were 75 (87.22%), partly solid and partly cystic 9 (10.45%) and only 2 (2.33%) were solid. In cases of malignant growths the consistency was not known in 3 tumours (only biopsy tissues received).

In the remaining 34 tumours solid ones were 18 (52.94%), partly solid and partly cystic 14 (41.18%) and only 2 (5.68%) were cystic. Jagadeeswari *et al* (1971) have also reported 97.6% benign tumours as cystic and 60% malignant tumours as solid.

Thus, the solid or partly solid and partly cystic tumours were generally considered as malignant unless proved otherwise on histopathology. On the other hand cystic ones were usually benign.

The breakdown of 93 benign tumours is shown in Table V. Serous cystadenoma was the commonest tumour as was also reported by Jagadeeswari *et al* (1971).

Epithelial tumours constituted roughly 2/3rd of the tumours (63.86%) in the present series—a finding identical to the observations of other workers (Gault *et al* 1954, Tyagi *et al* 1967, Jagadeeswari *et al* 1971, Ramachandran *et al* 1972, Norris and Charlton 1974). Amongst the epithelial tumours serous and mucinous cystomas constituted the bulk (49.40% and 30.12% respectively). Mucinous cystomas were of bigger size as compared to serous cystomas, as tumours more than 15 cms. in d ameter were seen in 70.83% and 51.52% cases respectively. Mucinous cystomas were mostly multilocular (79.12%) as compared to serous cystomas (9.09%). Bilateral tumours were seen in case of serous cystomas (2 out of 41), whereas all the 25 mucinous cystomas were unilateral.

These findings in the present series were in agreement with those observed earlier by one of the authors (SPT) in 1967 at Kanpur. While comparing the two series it appears that the ovarian

TABLE V

Breakdown of Benign Ovarian Tumours

Tumours	Number	Percentage of	
		Benign Tumours	Total Tumours
Serous cystadenoma	41	44.08	31.54
Serous cystadenofibroma	1	1.08	0.77
Mucinous cystadenoma	25	26.87	19.23
Brenner tumour	1	1.08	0.77
Benign Cystic teratoma	24	25.81	18.46
Fibroma	1	1.08	0.77
Total	93	100.00	71.54

tumours have more or less the same pattern in different parts of Uttar Pradesh except that the percentage of Muslim females was high in the present series due to large number of Muslim patients attending this hospital.

Summary

1. One hundred thirty ovarian tumours were obtained from 127 patients. The incidence of ovarian tumours in relation to total gynaecological admissions and total biopsies received in the Histopathology Section was 3.2% and 1.03% respectively.

2. Benign tumours were 93 (71.54%), tumours of borderline malignancy 5 (3.85%) and malignant ones 32 (24.61%).

3. Ovarion malignancy constituted 4.6% of all the malignant growths, 8.5% of all the malignancies in females and 26.21% of all the malignant growths of the female genital tract.

4. Broadly classifying the tumours according to W.H.O. Classification epithelial tumours were 83 (63.86%), sex cord stromal tumours 7 (5.38%), germ cell tumours 30 (23.08%), connective tissue tumours 3 (2.37%), and metastatic growths 7 (5.38%).

5. Left ovary was involved in 47.00% tumours, right ovary in 42.00% and both the ovaries in 11.00% of tumours.

6. Benign tumours were more common in 3rd and 4th decades of life (68.82%) as compared to malignant ones in 4th and 5th decades (56.78%).

7. The tumours were cystic (64.17%), partly cystic and partly solid (19.17%) and solid (16.66%).

8. Frequency of different tumours in various parts of Uttar Pradesh is more or less the same.

Acknowledgement

The authors are grateful to Dr. F. A. Langley, M.D., F.R.C. Path., Professor of Gynaecologic Pathology, St. Mary's Hospital, Manchester who was kind enough to review most of the tumour slides with his valuable comments.

References

1. Agarwal, V. and Saxena, B. P.: J. Indian Med. Assoc. 38: 158, 1962.
2. Allan, M. S. and Hertig, A. T.: Am. J. Obst. & Gynec. 58: 640, 1949.
3. Chitkara, N. L. and Sharma, R. J.: J. Obst. & Gynec. India. 8: 115, 1957-58.
4. Gault, E. W., Balasubraimanyan, M., Thomas, E., Isaish, P., Aleyamma, M. P. and Susheela, K. K.: Indian J. Med. Science. 8: 522, 1954.
5. Jagadeeswari, N., Satyabhama, R. and Srinivasa Rao, K.: J. Obst. & Gynec. India. 21: 727, 1971.
6. Jussawala, D. J. and Gangadharan, P.: Indian J. Cancer. 11: No. 2, Supplement, 1974.
7. Jussawala, D. J. and Gangadharan, P.: Indian J. Cancer. 12: No. 4, Supplement, 1975.
8. Mehta, R. C. and Purandare, B. N.: J. Obst. & Gynec. India. 14: 535, 1964.
9. Meyer, R.: Am. J. Obst. & Gynec. 22: 697, 1931.
10. Mitra, S.: J. Obst. & Gynec. India. 6: 99, 1955-56.
11. Norris, H. J. and Charlton, I.: Clin. Obst. & Gynec. 17: 189, 1974.
12. Purandare, B. N. and Patwardhan, G. N.: J. Obst. & Gynec. India. 6: 111, 1955-56.
13. Patil, P. N., Jhala, C. I. and Mathur, B. B.: Indian J. Cancer. 1: 36, 1964.
14. Ramachandran, G., Hiralal, K. R., Chinnamma, K. K. and Thangavelu, H.: J. Obst. & Gynec. India. 22: 309, 1972.
15. Serov, S. F., Scully, R. E. and Sobin, L. H.: Histological typing of ovarian tumours World Health Organisation. Geneva, 1973, p. 17.
16. Tyagi, S. P., Tiagi, G. K. and Logani, K. B.: J. Obst. & Gynec. India. 17: 423, 1967.
17. Vora, S. and Bhargava, V.: L.: J. Obst. & Gynec. India. 19: 358, 1969.

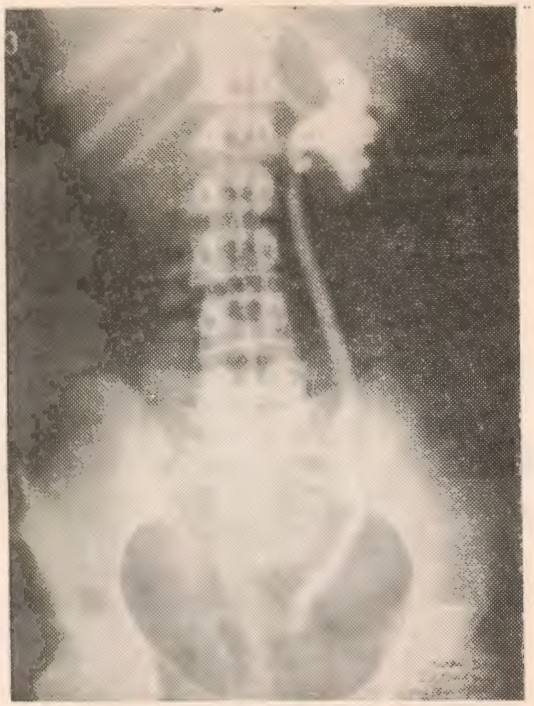

Fig. 1
Showing unilateral hydronephroses.

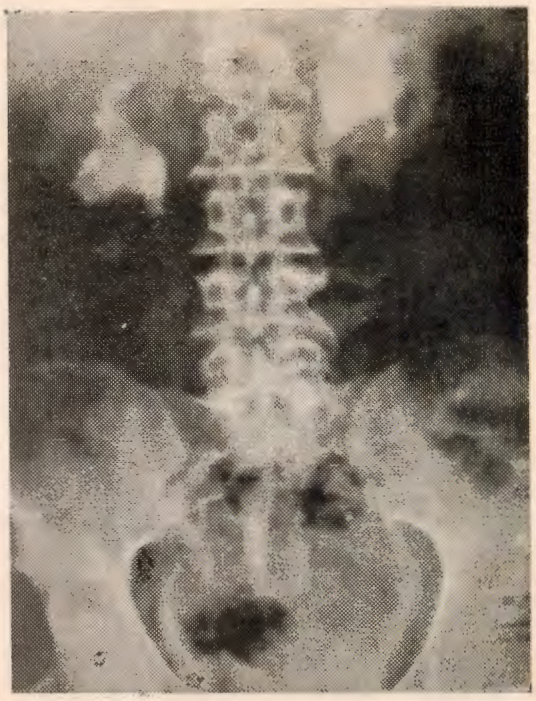

Fig. 2
Showing bilateral hydronephroses.

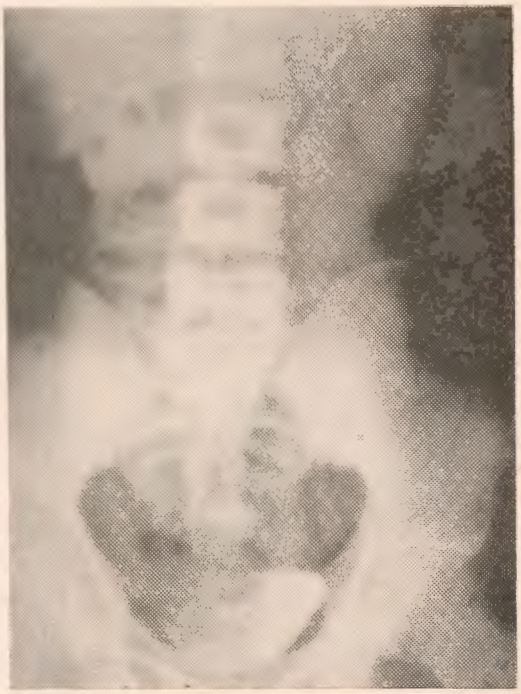

Fig. 3
Bladder filling defect right side.

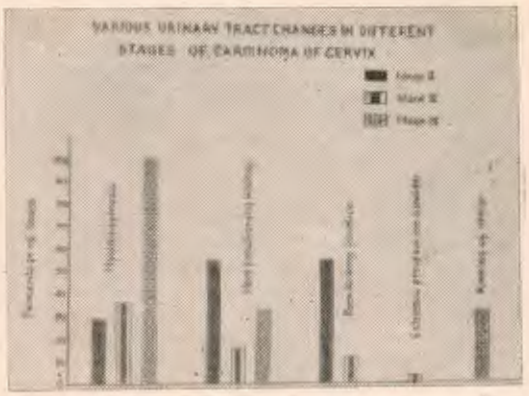

Fig. 4
Comparative incidence of various urinary tract changes in different stages of carcinoma cervix.

Surgical Treatment of Blocked Tubes—Das and Bhattacharjee pp. 858-862

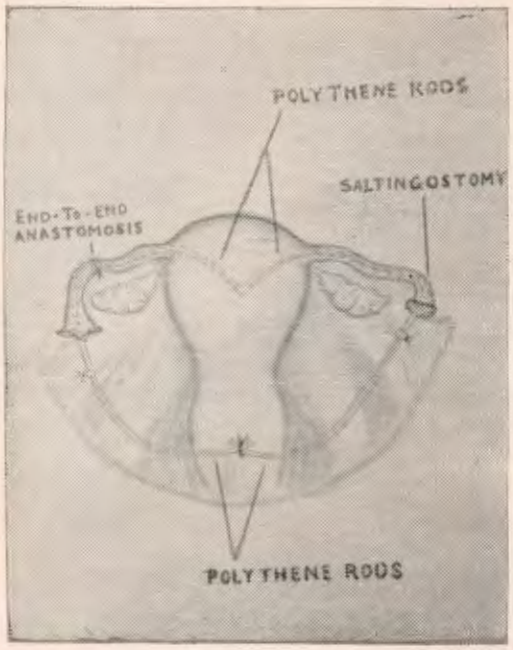

Fig. 1
Showing the new method of using polythene rods.

Fig. 2
Showing the two mothers blessed with five babies after tuboplasty operations.

A Report on a New Multi-Purpose Cervical Dilator—Philipose pp. 872-873

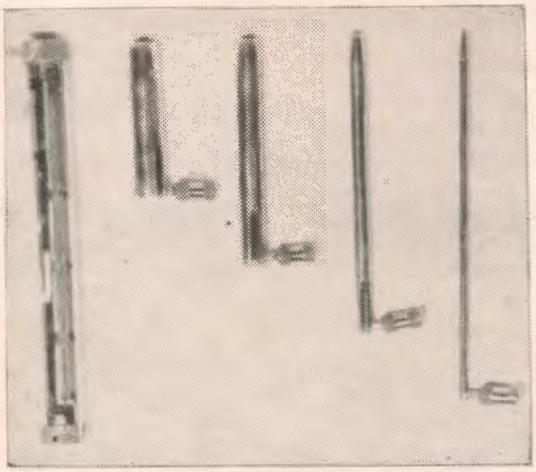

Fig. 1
The new multi-purpose cervical dilator seen dismantled.

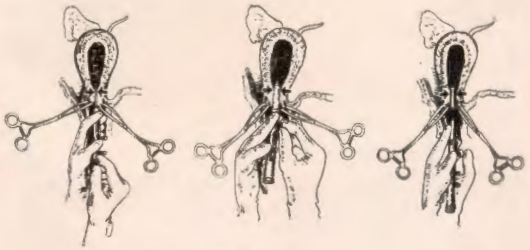

Fig. 2
Figures showing multipurpose cervical dilator in action.

Abdominal Pregnancy at Full Term—Oumachigui et al. pp. 878-879

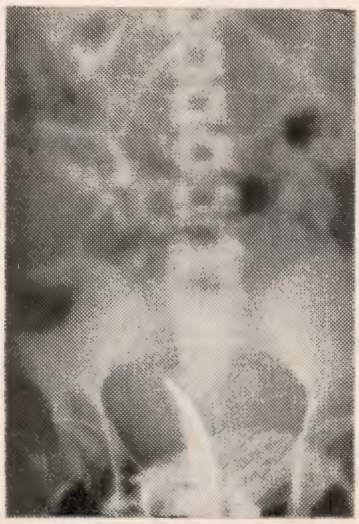

Fig. 1
Plain X-ray abdomen showing the high transverse position of the foetus in relation to the uterine sound.

Fig. 2
Lateral X-ray abdomen and pelvis shows overlapping of foetal parts over the maternal spine.

Chorioangioma of Placenta—Murty pp. 893-894

Fig. 1
Showing the chorio-angioma of placenta with two blood vessels on its surface.

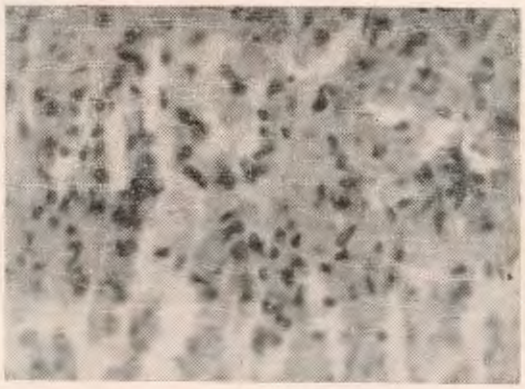

Fig. 2
Stromal cells and capillaries filled with R.B.C. in chorio-angioma of placenta.

Fig. 1
Photograph showing the uterus (D) with right tube (A) and on the left side of uterus, a round mass (B) over which the left tube (C) was found to be stretched out.

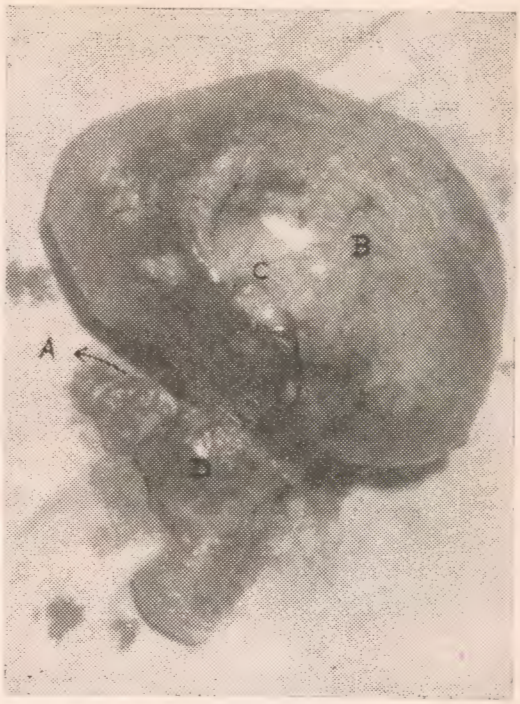

Fig. 2
The mass opened up to find a thickened gestation sac (E) containing a full-time male foetus (F) deformed and mummified with attached shrivelled up umbilical cord which ended at head end of the sac (G) (held up by a hook).

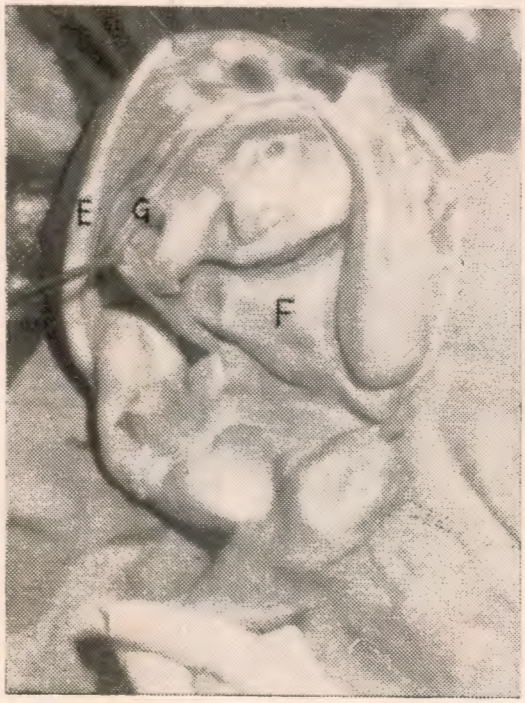

Fig. 3
Hystero-salpingography revealing normal sized uterus and right tube with fimbrial hydrosalpinx and stretched out left tube over the dead foetal shadow

Fig. 4
Microphotograph of the sac wall at placental site showed picture of numerous blood vessels and areas of fibrous tissue (a). No evidence of chorionic tissue or decidual reactions seen.

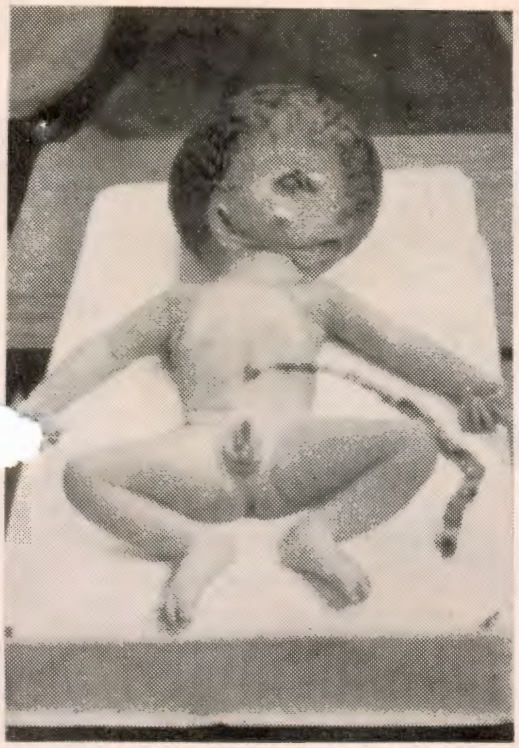

Fig. 1
Showing cyclopia with hydrocephalus.

Perforations of Uterus with Copper—T Devices —Eduljet and Basu PP. 888-890

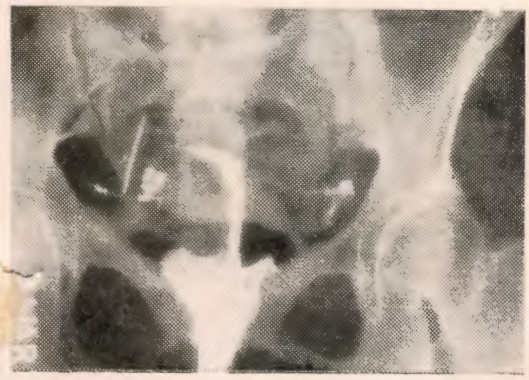

Fig. 1
Cu T device lying outside the uterine cavity.

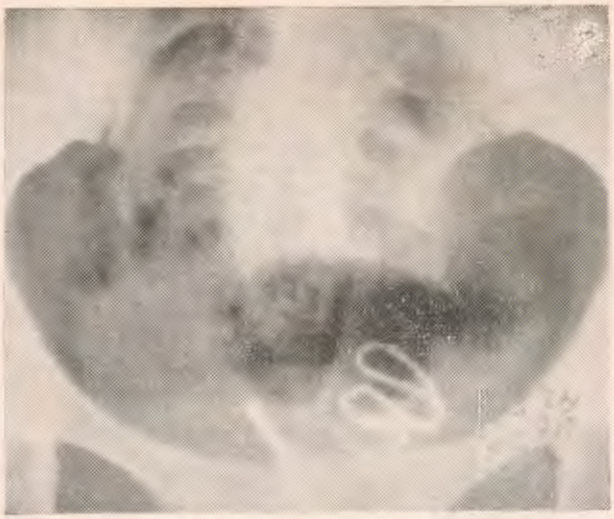

Fig. 1
Diagram shows that the device is well outside the uterine cavity. The longitudinal axis of I.U.D. corresponds to the direction of left uterosacral ligament.

Paraphimosis of Clitoris—Pal pp. 887

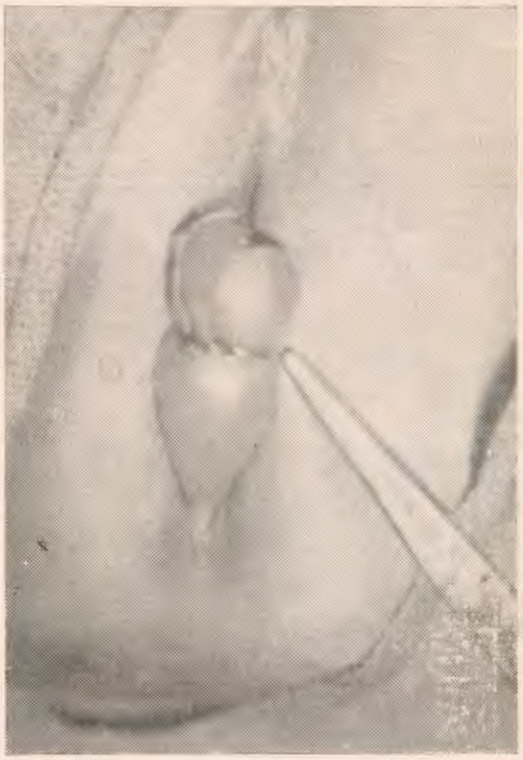

Fig. 1
There have been gross oedema of prepuce and glans of clitoris. The left lateral surface of clitoris shows evidence of gangrene. The artery forceps points to the thread which was tied at the base of the glans.

Prolapse of Intestine Following Traumatic Perforation—Revathi pp. 891-892

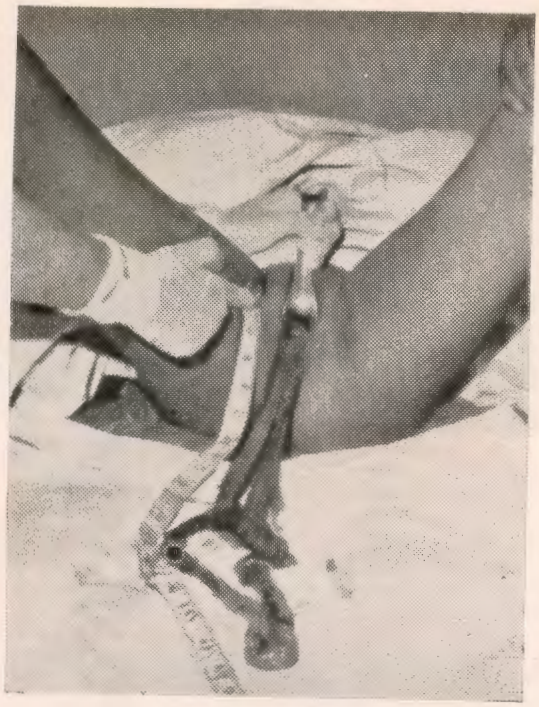

Fig. 1
Prolapse of loop of ileum through the uterus and cervical canal following traumatic perforation of uterus caused by criminal abortion.

Vaginal Parasitosis—Garud et al. pp. 912-913

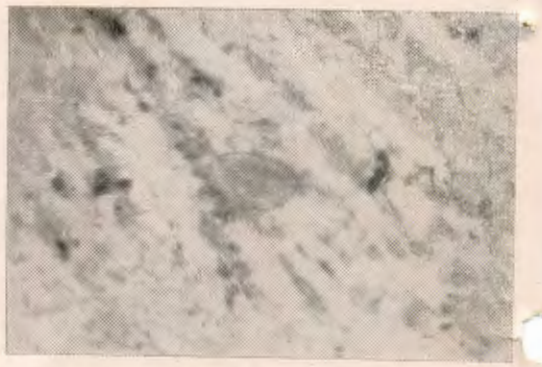

Fig. 1
Round worm ova, low power.

Fig. 2
Round worm ova, high power.

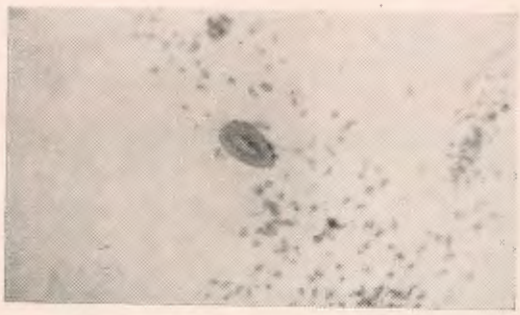

Fig. 3
Ova of pinworm.

Osteomalacia in Pregnancy—Khushalani pp. 898-899

Fig. 1
X-ray of pelvis arrows showing pseudofractures of pubic rami

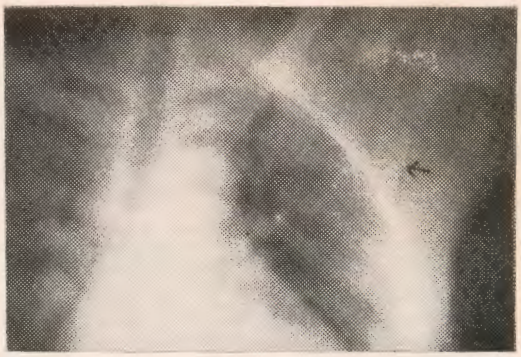

Fig. 2
X-ray kept shoulder region. Arrow showing pseudofracture of axilary border of scapula.

Primary Papillary Carcinoma of the Fallopian Tube—Rosario et al. pp. 916-918

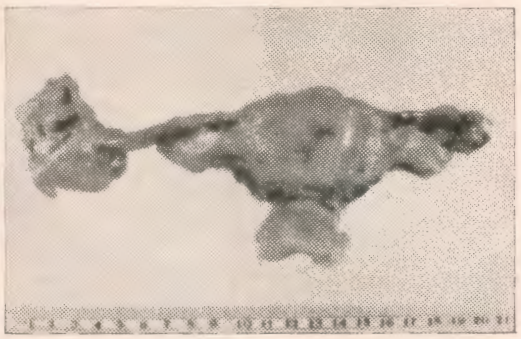

Fig. 1
Photograph of the uterus and adenexac showing the mass near the fimbrial end of the tube.

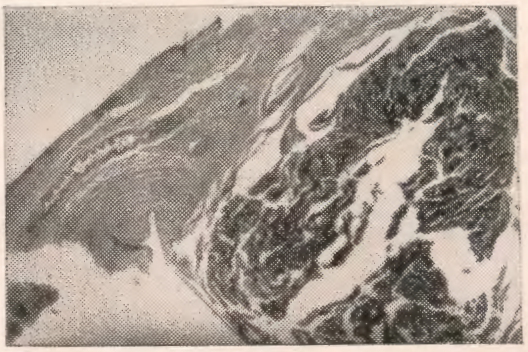

Fig. 2
Scar view of a microsection from the mass showing the papillary carcinoma arising from the mucosal wall of the tube H 0 x 10.

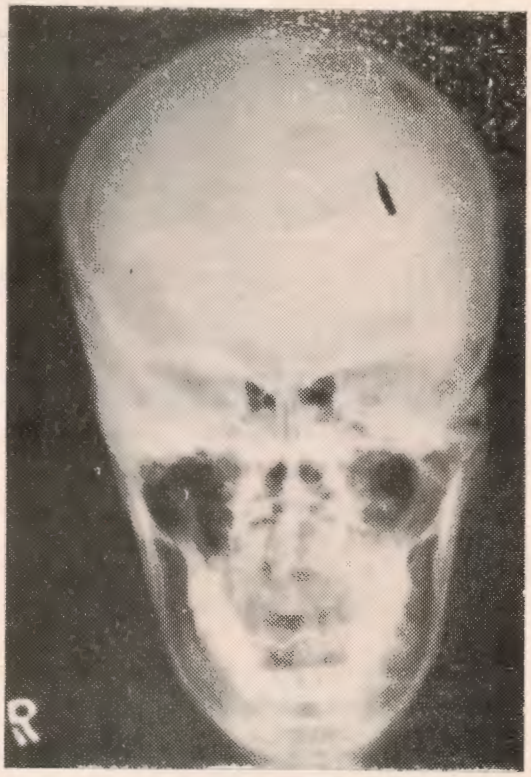

Fig. 1
Skull PA showing an osteolytic area in the frontal bone.

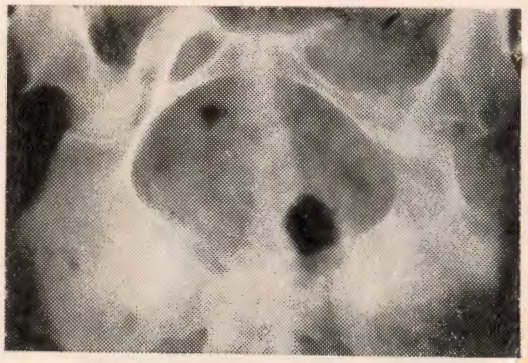

Fig. 2
Pelvis AP showing osteolytic secondary deposit in the ischium.

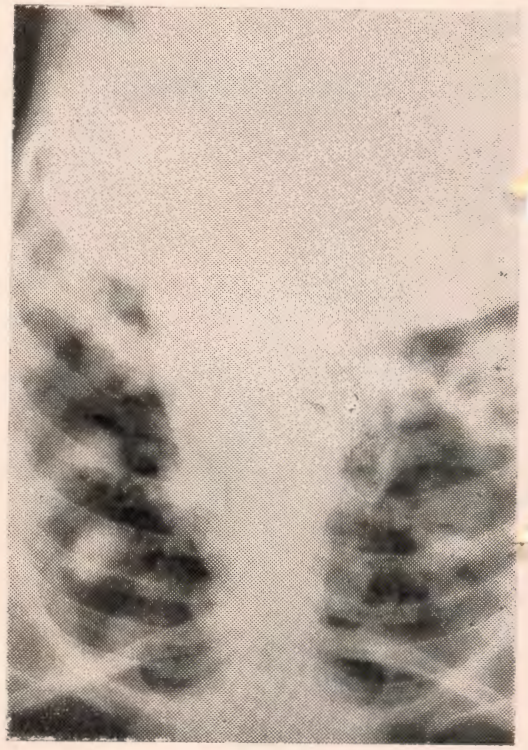

Fig. 3
Chest PA showing multiple cavitating secondary deposit in the lungs.

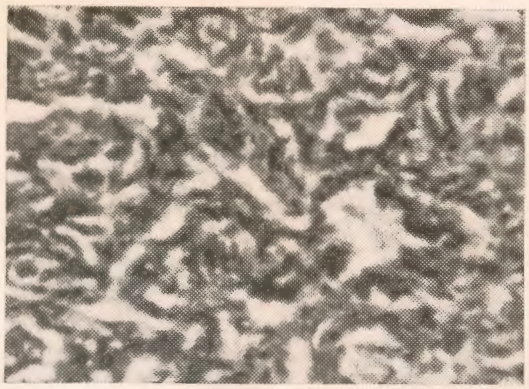

Fig. 1
Androblastoma—Dark stained cells forming illdefined tubular structures. H. & E. x 270.

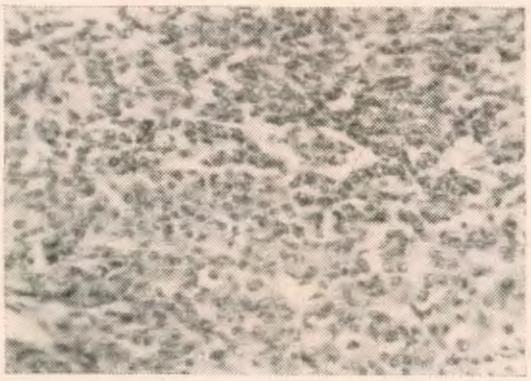

Fig. 2
Showing large polyhedral cells with eosinophilic cytoplasm and vesicular nuclei (Leydig cells) in the lower half H. & E. x 200.

The IXth World Congress of Gynaecology and Obstetrics will be held in Tokyo, Japan from October 25 to 31, 1979

Scientific programme will comprise of Guest Lectures 3, Planary sessions 7, Correlated Seminars 13, and Seminars 31, Opening ceremony will take place from 2.30 to 5.00 p.m. on 25th October and the closing ceremony will be from 5.30 p.m. to 6.30 on 31st October 1979.

Place: Hotel New Otani, Tokyo, Japan.

Official Languages: English, French, Spanish and Japanese.

Scientific Programme:

Special Lectures:

October 26 (Friday) 9:00-10.00
SL-1 Reproductive endocrinology
By Prof. Kenneth J. Ryan
Harvard Medical School, U.S.A.
October 29 (Monday) 9.00-10.00
SL-2 Comparative aspects of fetal differentiation
By Prof. Alfred Jost
college de France, France
October 31 (Wednesday) 14.00-15.00
SL-3 Recent progress in gynaecologic oncology
By Prof. Per Kolstad
Norwegian Radium Hospital, Norway

Plenary Sessions

PL-1 Social aspects of Obstetrics and Gynaecology including contraception (2 sessions)
PL-2 The climacteric and postmenopause including hormone therapy
PL-3 Endocrinology of the menstrual cycle
PL-4 Physiopathology of intrauterine fetal growth (2 sessions)
PL-5 Reproductive immunology
PL-6 The role of Obstetric management in reducing fetal mortality and morbidity
PL-7 Premalingnant lesions of the female genital tract

In addition, there are Correlated Seminars, Seminars and Free communications covering wide range of topics of current interest. Film and Video tape sessions Scientific Exhibition and a large-scale technical exhibition are also planned.
There will also be precongress educational programme on payment. There will also be post congress medical tour and also post congress sight seeing tour (arranged by Japan Travel bureau) on payment.

Registration fees will be as follows:

	Before 31-7-1979 Yens	After 1-8-1979 Yens
Members	60,000	70,000
Non Members	70,000	80,000
Accompanying person of members	30,000	40,000
Accompanying persons of non members	35,000	45,000

Deadlines:

Early registration ..... July 31, 1979
Application
Free communication papers ..... February 28, 1979
Films and video tapes ..... February 28, 1979
Scientific exhibits ..... February 28, 1979
Hotel and optional Tour reservations ..... July 31, 1979
Free Communications

Those members who wish to present their scientific papers should forward the full text along with abstract in 5 copies, each to Hon. General Secretary, The Federation of Obstetric and Gynaecological Societies of India on or befoore 31-12-1978. The acceptance will be communicated to each author by April 1979 by the Organising Committee of the World Conference.

Dr. R. D. PANDIT,
Hon. General Secretary.