

(a) A Case of Iron Deficiency Anaemia Associated with Pregnancy

Case Report:

Presented by Dr. Koo Boo Chai.

TYM. Age 27 years. Unbooked.

Primigravida.

L.M.P. 15.7.55)

E.D.D. 22.4.53) Maturity 35 weeks.

History:—

1. Gradual swelling of both feet 2 months.
1. Swelling of the face and hands 1 week.
3. Easy fatigability with loss of appetite.
4. Bowels/Bladder: N.A.D.
5. Earning capacity of husband approx. M\$100/00 p.m. Diet consisted mainly of broth with vegetables. Meats only consumed once or twice a week. For the last 2 months or so, she was advised by her mother-in-law not to take pork, fish or eggs because "by doing so she would aggravate the swelling."

Examination:—

- (i) General Condition — Pale.
—Pitting cedema of both legs with puffiness of the face.
—B.P. 130/86.
—Albuminuria — nil.

(ii) Heart/lungs:—Clinically clear.

(iii) Obstetric Examination.

Vertex presentation, R.O.P.

Head not engaged.

F.H.H. Fundus — height of 34 weeks.

Lab. Investigations:—

Blood:

T.R. 1.62 millions.

Hb. 31%

T.W. 7,000

D.C. P:82. L 10, M4, E4.

Reticulocytes 2.5%

PCV 17%

MCV 34 Normal (78 — 94)

MCH 28.8 g Normal (27 — 32)

MCHC 25.5% Normal (28 — 34)

Colour Index 74

Stools: Anky ova seen.

Urine: Alb. nil.

Feb PC and EC

Treatment:

High protein diet.

Polyvitamins in therapeutic doses.

Inj. Imferon 2 cc intramuscularly daily x 7 doses.

Deworming with oleum Chenopodium.

Discussion:

Dr. Khoo Boo Chai said that Anaemia associated with pregnancy was a condition commonly seen in the ante-natal out-patients department of this Hospital. Because of the ever present problem of shortage of hospital beds, only the severe cases, like the one under review was admitted. Those on the border-line were treated as out patients. The commonest type of anaemia seen in this hospital was that due to iron deficiency or the microcytic hypochromic anaemia. The Rbc's when seen under the microscope are small, some of them irregular in shape with a pale centre. The haemoglobin content in each cell is reduced. Amongst the Chinese, because of the age old custom of using nightsoil as manure, iron deficiency anaemia is frequently associated with ankylostomiasis or hookworm infection. In this patient he suggested that the anaemia ante-dated pregnancy, and the physiological hydraemia coupled with the heavy demands of the foetus during the last trimester of pregnancy further aggravated it. It was interesting to note, he said that with hookworm infection, the response to iron therapy was good even without preliminary deworming. Depending on the Rbc. & Hb. he gave a course of 900 mgm. of elemental iron parenterally that is 2 c.c. of Imferon daily for 9 days. The response was usually good, and approximately similar to that obtained by Govan & Scott who reported in a series of cases treated with 1/v iron, a rise of 1% Hb for every 40 mgm. of elemental iron used.

However, he said that parental iron therapy in excessive amounts used over a prolonged period gave rise to deposition of considerable quantities of iron in the liver with untoward effects on the patient. Furthermore, he noticed that the Tr. & Hb, continued to rise even when the iron therapy was stopped and he had not been able to account for this phenomenon.

This patient had had 400 mgm. of elemental iron together with Polyvitamins and a high protein diet, and the response was that he had hoped for. He intended building her up further so that she would be able to stand the hazards of labour and the puerperal state.

DR. WILSON RODDIE, in opening the discussion, said that it was hardly necessary to remind the house that anaemia in pregnancy was a serious matter. Anaemia might be present before conception; it was usually aggravated by pregnancy and the accidents of labour might perpetuate it. Thus one of the important functions of antenatal care was to detect and treat the condition.

He said that to understand the condition one had to appreciate a little physiology. In pregnancy there was a physiological hydraemia consequently reducing the Hb. percentage. A figure below 80% should be considered pathological. The commonest source of trouble in anaemic pregnancy was an inadequate iron absorption. The pregnant woman needed about 15 mgm. Fe per day and of the total amount of iron in food only a fraction was available for absorption. It was thus necessary to supplement the diet of pregnant women with iron preparations.

He conceded that anaemia was a major problem in the tropics and several factors contributed to it. Malaria—though Singapore is free from this now—hookworm, and many other parasitic and infectious agents could lead to anaemia but malnutrition was probably the most important single factor. The dietary ingredients necessary for normal haemopoiesis were many and diverse, including iron, trace metals. Vitamin B12. Folic acid, Vitamin C and sufficient protein of high biological value.

This latter factor was important, he said, especially in this country. Protein malnutrition was a major cause of death and disability. This affected infants and young children as well as adults, and par-

ticularly pregnant women. The term protein malnutrition had, he was sure, a wider meaning than simple dietary protein deficiency. It included disturbances produced primarily by under-feeding but aggravated by zymotic agents and infection which may convert borderline nutrition into malnutrition.

In 1953 when he was in West Africa he had the opportunity of seeing Professor Woodruff who was investigating this type of anaemia in Nigerians. In the cases of anaemia he studied about 50% were normocytic, 25% macrocytic and 25% microcytic. Reticulocytes averaged about 4% indicating a fair degree of activity. The red cells throughout the group investigated were characterised by an increase in the diameter but a diminution in their thickness. A haemolytic tendency was common. There was a similarity in these red cell findings to those characterising the anaemia associated with hepatic disease. It was interesting to note that the liver and spleen were enlarged in about 2/3rds of Woodruff's cases. He did hepatic biopsies in these cases and this showed fatty infiltration or excessive fibrosis. This was a finding usually associated with a deficiency of dietary protein. Serum protein analysis showed a low level of albumin and a high level of serum globulin especially the gamma fraction, a finding common in people with chronic liver disease. Biochemical tests also revealed an impairment of liver function.

Clinically this type of anaemia tended to become most severe in the last 3 months of the pregnancy and to improve somewhat after delivery, no doubt due to the demands imposed by the growing foetus.

Also, this type of anaemia seemed refractory to treatment with folic acid, B12 or iron. The therapeutic measures that seemed most useful were a high protein diet—casein was given—blood transfusion.

In these types of cases there seemed to be a marked tendency for labour to be premature and the neonatal mortality to be high. Also the average weight of babies born to these mothers was lower than to those who were healthy.

Thus, to make pregnancy safe for people in the tropics and to prevent the occurrence of these anaemias, he said, the aim should be an adequate diet, particu-

larly during the years of growth and child-bearing, so that at either of these periods the liver could become damaged or protein deficiency develop.

PROFESSOR B. H. SHEARES spoke on *Iron Metabolism in Pregnancy*. He said that, as pregnancy progressed to term and through delivery the woman was subjected to a variety of iron losses:—

1. Increase blood volume would utilise 400 mg. iron.
2. In last trimester 500 mg. was transferred across the placenta for foetal requirements.
3. At the time of delivery there was a further loss of at least 100 mg. iron that was withheld in the placenta.
4. With the average blood-loss of 150-250 c.c., another 100 mg. iron was lost.
5. Should she nurse her baby, there would be an additional loss of 1 mg. per day of nursing.

Hence iron deficiency anaemia would surely develop unless she has been put on extra iron to meet these demands of pregnancy and

15.5 gm. per cent Hb=100%

12.0 gm. per cent Hb= 77%

Standard level = 75%, if therapy successful.

He suggested the following regimens of iron delivery to the patient suffering from iron deficiency anaemia:—

1170 mg. iron+molybdenum oxide orally daily. 10% patients will require dilute hydrochloric acid 10 minims t.i.d. for absorption—7% patients will require I.V. iron=900 mg. iron monoxide in sucrose in newly buffered solution (500 mg. for foetal need and 400 mg. to replenish her depleted iron reserve) in 5 broken doses. 1st dose 100 mg., followed by 4 doses of 200 mg. given at 3-day intervals. Give slowly at rate of 1 c.c. per minute. Reaction rate only 6%. High protein diet, and, if necessary, protein in powder form by mouth or hydrolysed protein intravenously.

True iron deficiency anaemias due to failure of intestinal absorption respond dramatically. The problem is one of deli-

vering an adequate supply of available iron to the bone marrow for haemoglobin synthesis.

Supplementary oral iron can be absorbed at a maximum rate of only 5 mg. per day, and since the deficit at the end of pregnancy is about 700 mg. it is obvious that iron therapy should be instituted at 150 days before the E.D.D. In the lactating woman iron should be continued into the puerperium.

ROY HOLLY, formerly University of Minnesota, now Professor of Obstetrics & Gynaecology, University of Nebraska—on haematology of pregnancy wrote: "if you deliver adequate iron to the bone marrow of gravidae throughout pregnancy their haemoglobin will remain just the same as it was before conception, without any evidence of the so-called "blood dilution" effect. This fact is of great clinical importance because it means that the low haemoglobin levels which we used to dismiss as due to blood dilution are actually attributable to iron deficiency. We must know how to deliver the iron to the bone marrow in pregnancy. Contrary to previous belief, the majority of our cases of anaemia are of the microcytic variety rather than the macrocytic and are attributable to inadequate intake of iron or inadequate absorption."

Iron requirement of pregnancy is believed to be 20-22 mg. per day (average diet in this country contains 5 mg. iron).

He then proceeded to stress the *Importance of Serum Iron as an Index of Iron deficiency*. He said that, whereas a microcytic anaemia due to iron starvation requires months before it can be demonstrated, the same iron deficiency will produce a fall in serum iron within a few days.

The haemoglobin levels will show little, if any change during these few days.

The response of the serum iron to iron starvation derives from the fact there is no absorption from the gastric and duodenal mucosae. The iron is transported by the B1 globulins of the serum to the bone marrow where it is synthesised to haemoglobin.

"Total iron binding—capacity of these globulin vehicles=300 microgram per 100 c.c. serum.

"Iron saturation" — is the percentage to which these vehicles are actually loaded at time of observation. "Unsaturated iron binding capacity"— is the extent to which they are unfilled.

The iron binding capacity of serum is increased in pregnancy, (i.e.) greater transportation facilities as for iron become

available. It is a well known fact that the beta globulin in serum are increased in pregnancy.

If adequate iron is supplied during pregnancy, the iron level of the serum of the mother, in spite of the demands made by the foetus, can be maintained at a satisfactory, if not at the normal level.

(b) A Case of Papilliferous Serous Cystadenoma of the Ovary

Case Report:

Presented by Dr. C. S. Seah.

S.B.S. Gynaeco. O.P.D. No. 1024

Admission No. 539-B

Age 44 years. Para — 6, Younger child 7 years old.

Husband living and well.

Past Gynaeco.—*Obstetrical History*— 2—3

Menarche (14) 26+2

Periods fairly regular. Amount of flow—moderate.

No dysmenorrhoea.

All normal spontaneous deliveries.

L.M.P.: 29. 2. 56 to 2. 3. 56

Past Health:—

Said to be good.

Present Illness:—

1st seen in Gynaeco O.P.D. on 10/2/56. Presence of painless swelling in lower abdomen noticed for 7 months with sudden enlargement and increase in size during the last 1 month. No noticeable loss of weight.

No fever, no urinary or bowel symptoms experienced.

Bowels movements regular—stools well formed and normal.

2 months ago she had an attack of stretching pain in her Rt. lower quadrant. This passed off in 2 days.

1 month later, she had another attack of similar pain though worse in intensity and accompanied by vomiting.

O/E in Gynaeco. O.P.D.:

General condition good; fairly well nourished.

Temperature 99° — Pulse 100/minute. B.P. 130/70.

Chest and Heart—Clear clinically.

Abdomen:

Fullness of abdomen.

Cystic mass arising from pelvis.

Size of 36 weeks pregnancy.

Uterus:

Deviated to R. side and backwards.

Cervix:

Soft and blue points to the left side.

Provisional Diagnosis:

Multilocular Ovarian Cyst

Investigations:

X-Ray abdomen report 411/56 — Soft tissue mas. No abdominal calcification.

IVP—Report 473/56.

Blood—(Hgb. 70%

(Rbc. 3.03 million

(Wbc. 7,800 (p66, L15, M3, E16)

Blood Urea: 18 mgm. X

Catherised Urine—

1. Albumin — Ve)

N. A. D.

2. Sugar — Ve)

Admitted 9.3.56 for ovariotomy† and probable hysterectomy.

Found & Done during operation:

1. Free serous fluid in peritoneal cavity.

2. Right multi-locular pseudo mucinous cyst total measured weight= 10 lbs. 7 ozs. Muddy fluid — 9½ pints.

Outer surface of cyst wall—smooth.

No gross proliferous growth seen.

However over the utero vesical pouch and pouch Douglas — the peritoneal surfaces are studded fine granular whitish spots.

3. Retention cyst—size of pigeon's egg, on left side. Pan-hysterectomy and Appendectomy done. Section of excised cyst proliferative cauliflower projections on cyst wall—indicative of malignancy.

Piece of tissue from cyst wall—sent for pathologic report.

Section of Uterus — bulky — no abnormality.

Cervix — no abnormality.

Patient stood the operation well.

Discussion:

DR. C. S. SEAH opened the discussion by a general talk on *Papilliferous Serous*

Cystadenomata.

He said that grossly it was not always possible to distinguish between the serous and pseudomucinous varieties of cystadenoma, though as a rule the serous variety had a tendency to the formation of papillary excrescences into the cyst cavities and on the surface of the tumour as well.

The simplest variety of this type of cyst was that of a unilocular cyst of moderate size. The larger serous cysts were usually lobulated and multilocular but the evacuated fluid was commonly more watery than the pseudomucinous variety. It could, however, be chocolate or brownish coloured from admixture of blood elements. When the cyst was opened papillary outgrowths were usually found in one or more of the compartments and the external surface itself might be covered with masses of papillary growth which may even infiltrate surrounding organs even when histologically there was not the slightest sign of malignancy. It followed that it was often impossible to distinguish grossly between cysts that were malignant and those that were benign.

MICROSCOPIC CHARACTERISTICS.

Microscopically the appearance of the epithelium of these cysts varied a great deal, which was not surprising in view of the fact that they arise from the germinal epithelium of the ovary. It often resembled that of the fallopian tube with two types of cells, one ciliated columnar, with central vesicular nuclei, the other taller often pear-shaped with intensely solid nuclei often placed rather peripherally. The epithelium was not always uniform even in the same tumour for with the epithelium described above one often found epithelium cuboidal in type with tuft-like pseudo-ciliary cytoplasmic projections.

The papillary structure and character of the epithelium of many of these tumours was frankly benign but not infrequently the degree of proliferative activity and anaplasia was so marked as to raise the question of malignancy. There was often a difference of opinion among individual pathologists as to the histologic diagnosis of malignancy in cases of papillary serous cystadenoma.

To compound this confusion in some histologically frankly benign cases peritoneal implantation of the papillary vegetations may occur, associated with ascites, and even after removal of the main tumour the ascites may recur again and again after tapping so that finally, perhaps after many years, the patient succumbs to cachexia, emaciation or terminal infection. On the other hand, in many cases in which it had been impossible at operation to remove all the vegetative papillary growths the patient has remained entirely well.

In the interpretation of such tumours one had also remember that malignant changes may be limited to a very small area of the tumour so that it could easily be missed.

In this particular case there was a fair amount of intra-cystic papillary outgrowths and even a couple of them on the external surface, with also some implants on the pelvic peritoneum and the serosal surface of the uterus.

Microscopically, the epithelium was tubal in nature and there was a fair degree of proliferative activity though the pathologist ventured that on the whole the histological appearance was benign.

INCIDENCE:

WILFRED SHAW in 1932 found 26 cases of papilliferous serous cyst adenomata in his series of 300 cases of ovarian tumours giving an incidence of 13.6%.

SIZE: The largest tumour of WILFRED SHAW'S series contained 8 pints of fluid, and 4 tumours were more than 12 inches in diameter. The usual diameter was about 4 inches.

The tumours were bilateral in 9 cases i.e. 34.6% of cases.

TORSION: Torsion of the pedicle occurred in 4 cases i.e. 15.4%.

AGE INCIDENCE:

The youngest patient was 24, the the oldest 81.

In this same series he had 11 cases of malignant serous papilliferous cystadenocarcinoma.

SYMPTOMS:

In one patient of menopausal age the catamina was irregular and one patient gave a history of 2 years amenorrhoea. Apart from these two cases there were no menstrual disturbances recorded.

PAIN:

Thirteen patients complained of abdominal pain. Excluding the 4 cases associated with torsion of the pedicle the symptom was not characteristically localised or of a particular type; a dull ache was the usual complaint.

SWELLING:

Abdominal swelling was complained of by 11 patients.

FREQUENCY OF MICTURITION was a symptom present in 3 cases.

ASCITES was present in 3 cases.

VOMITING was complained of by 1 case.

COMPLICATIONS:

In one of the cases, in which the tumours had burrowed between the layers of the broad ligament, it was incompletely removed. In 2 cases papillomata were found distributed over the outer surface of the cyst, and in one case implantations of papillomata were visible on the peritoneum. These implantations were limited to the pelvis.

There was no operative mortality.

Speaking on TREATMENT DR. SEAH said that in general it is now agreed that the presence of an ovarian neoplasm was an indication for laparotomy, whether the tumour gave rise to symptoms or not. The incidence of malignancy in ovarian neoplasms was in the neighbourhood of 15%.

For cases of serous papilliferous cystadenomas, Te Linde was of the opinion that when peritoneal implants are present a hysterectomy and double salpingo-oophorectomy should be done irrespective of the age of the patient. When the papillary serous cystadenoma was unilateral and entirely free, and no implants were found, he favoured a radical operation especially in women in their late thirties and beyond. The justification of this lay in the tendency of these tumours to become bilateral ultimately and to change to malignancy. The temptation to insert a trocar into these serous cysts generally should be resisted; the incision should be enlarged to permit removal intact. With enormous cyst, evacuation by trocar may be unavoidable. It was a good rule to have every apparently benign ovarian cyst opened in the Operating Theatre before the abdomen was closed. If intracystic papillomas are found with an appearance at all suggestive of malignancy the uterus

and opposite tube and ovary should be removed, though younger women should have the benefit of the pathologist's report on a frozen section. After menopause, even though the unilateral tumour is benign, provided the patient's condition does not contra-indicate it, a panhysterectomy should be performed.

Speaking on the PROGNOSIS of Papilliferous Cystadenomata, he said that NOVAK was of the opinion that if the tumour was histologically benign the prognosis was good even if it had been impossible to remove all the peritoneal implants.

The 5-year-rate of cure of ovarian carcinoma varies from 65% to 6.3%, and, in Te Linde's opinion, the greatest variable factor in the statistics is the difference in interpretation of malignancy of these papillary tumours.

Of the 26 cases in WILFRED SHAW'S series 22 had been traced. The interval since the operation varied up to the maximum of 7 years. Of these 22 cases two had died—one from carcinoma of the opposite ovary 2 years after the 1st operation, and the other from sarcoma of the uterus.

The tumours were bilateral in 34.6% of the cases and of the unilateral cases, where the opposite ovary had not been removed, similar tumours arose in the ovary left behind in two cases.

PROFESSOR B. H. SHEARES continued the discussion. He stressed the *Need for Caution in Ovarian Conservation*. He said that it was far better to be safe than sorry, as one would be if one did not open the cyst at the operating table and later received the pathologic report of papillary cystadenocarcinoma of the ovary. One may often be tempted to keep a nice ovarian cyst intact so that it could be photographed or perhaps shown at the next staff meeting, but such a policy may make a surgeon unhappy.

If the cyst was thin walled, and if its inner wall was smooth and showed no papillary growth, one need have little fear of malignancy. If, on the other hand, the interior was filled with papillary excrescences the growth is quite sure to be one of the so-called borderline variety which should be treated as would a frankly malignant one.

One should have training in the special problems of gynaecological pathology, especially so in the case of ovarian tumours.

He then passed on to discuss the *Clinical & Pathological Evaluation of Ovarian Cyst*. He referred to the thirty-five year analysis of cases of ovarian cancer seen at the Massachusetts General Hospital which showed a 5-year survival rate of 15.5% (Meigs, 1940) 1901-1934. Recent figures 1935-1943=67 cases, survival rate 28.4%. This improvement of 11% over previous results was attributed by Meigs to more aggressive surgical treatment and the use of X-Ray therapy.

At present the only means of improving the survival rate was to carry out more complete and thorough examination on healthy women as well as on those with symptoms. Ovarian carcinoma remained one of the most depressing aspects of the whole problem of gynaecologic cancer.

Women should be examined at intervals of 6 months after the age of 35 years.

Abnormal bleeding was not always an early sign in cervical or endometrial cancer, and was completely lacking with ovarian malignancy.

All too often the first sign noted by the woman with ovarian cancer was a lump in the lower abdomen or a swelling due to ascites from peritoneal metastasis. The poor prognosis of ovarian cancer in general was probably due to the late stage at which it came to treatment more than the inherent malignancy of the disease.

Only routine examination could be expected to detect the early group.

He suggested that the attitude toward ovarian tumours, especially those which seem to be solid or semi-solid, should be a ruthless one (unlike the attitude to myomas), because of the hazard of existing cancer or the wicked potentialities for the future. Surgery should always be of the radical type. Bilateral malignant tumours are already late.

Even in the presence of widespread dissemination, removal of the primary ovarian lesions was desirable and may retard the progress of the disease. Often this was unsafe because of the patient's condition or the local infiltration of the tumour into the rectum, bladder or other viscera.

Many surgeons employed post-operative X-Ray therapy just because it was the only thing left to do that had any sense to it, and it may be possible to pro-
long the patient's life. He was not enthusiastic about it and while he almost always advised it he had never seen a case in which cure could be credited to irradiation.

In some instances, the case may move along like wildfire in spite of post-operative irradiation.

He said that Carcinoma of the ovary may be either a solid or cystic tumour, the latter being more common in a proportion of 2.0 to 1.4 based on a series reported by MEYER, and quoted by NOVAK.

Ovarian tumours showed great structural variety. The histogenesis of some of them was clear, of others still obscure.

Cystic carcinoma of the ovary could be divided primarily into 2 types—pseudo-mucinous and serous.

He particularly stressed this point that 15 to 20% of all ovarian neoplasms are malignant.

He then enumerated the *Surgical Indications* for management of ovarian tumours:—

1. Young women, cystic tumour 10 cm. and over in diameter with no decrease in size in 60 days. Solid tumours demand earlier investigations than do cystic tumours.
2. Any persistent ovarian enlargement in women between ages of 35 and 50 should be investigated surgically without appreciable delay.
3. All ovarian tumours in post-menopausal women should be removed.
4. In any age group, a rapidly enlarging ovarian tumour is an indication for immediate surgery.
5. Persistent pain after an acute onset of pain—usually due to torsion of the pedicle.
6. Chronic pain, in the presence of ovarian enlargement, is a common symptom of invasion of the ovarian capsule by carcinoma.

7. Any patient who has hydrothorax plus a pelvic tumour.
8. Diagnosis of dermoid tumour by X-Ray, because of the high torsion—potential of these tumours.
9. Ovarian enlargement in a child with precocious puberty. Possibility granulosa-cell tumour.

Finally, he dealt in detail, with the *Surgical Principles* involved in the management of ovarian tumours:

After all criteria for laparotomy had been fully satisfied: he said that the following points should be observed:

1. *Adequate exposure*—"A long incision may be synonymous with longevity for the patient." There was no place for aspiration of large tumours in order to collapse the cyst and delivery of it through a small incision.

The capsule of an ovarian tumour, although it may consist of only a few cell layers, may be the last life insurance policy that the patient has. Many grossly innocuous cystic ovarian tumours will be found on microscopy to contain carcinomatous tissue. By the same token there is no place for aspiration of fluid from the abdomen unless one can be positive that the fluid is not contained in an ovarian cyst.

2. *Complete Examination*: First upper abdominal cavity in order not to overlook a carcinoma of the upper intestinal tract with metastasis to the ovaries. Explore liver, gall-bladder, kidneys, aortic nodes and then the pelvis. Rule out pelvic kidneys.

3. *Necessary Removal*:

Both tubes and ovaries should be carefully exposed in young women before any definite surgery is carried out on any organ in the pelvis. Removal of tube with the ovary is for surgical expedience and is not a surgical necessity.

4. *Conservative approach in benign lesions*:

Thoughtful ovarian resection instead of thoughtless bilateral oophorectomy may mean the

difference between a happy, child-bearing marriage and forlorn, castrated existence.

Do not remove physiological distension cysts. Small dermoid cysts may be dissected out. Meticulous skill is required, because spillage of dermoid material might result in serious chemical peritonitis.

5. Knowledge of Ovarian Pathology—to identify gross appearance of ovarian pathology.
6. Immediate examination of tumour.
7. Frozen sections—not as important as knowledge of gross ovarian pathology.
8. Radical approach in cancer—Must be able to visualise the ureters properly.
 - (a) Removal of the omentum with uterus and ovaries—decreases the chance of recurrent ascites. If ovary has been removed singly and pathologist's do second operation. Saving the life of the patient is more important than the surgeon's saving face.
 - (b) Total hysterectomy — when bilateral oophorectomy is performed.
9. Parovarian cysts—many are intraligamentary and in very close contact with the ureter.
10. "Prophylactic" removal of the ovaries—at or near menopause when hysterectomy is done. Danger is increased incidence of osteoporosis, senile vaginitis, distressing menopausal symptoms, and increased incidence of coronary disease. These dangers have a decreasing acceptance rate among latter—day Gynecologists.
11. Torsion of pedicle—clamp pedicle before infarcted tumour is untwisted and removed. May prevent massive pulmonary embolism from a thrombosis in the veins of pedicle.
12. Ovarian tumours in pregnancy — usually dermoids, if cystic — wait till 16th week; if solid, remove as soon as diagnosis made.