MATERIAL AND METHODS

The cases included in this study, were the patients, attending outpatient department of gynaecology and admitted in gynaecological ward of M.L.S. Medical College and Hospital, Jhansi. Total 62 patients were studied for various gynaecological disorders. A detailed clinical history was taken from all the patients. General and systemic examinations were carried out. All the patients were investigated by other procedures to reach a definite clinical diagnosis. In 47 patients, "single contrast" pneumoperitoneum was performed while in 15 patients 'double contrast' pneumoperitoneum was carried out.

Following materials were used in this study.

1. Two syringes - one of 20 c.c. capacity and another of 5 c.c.

2. Sterilised cotton, gauze.


4. Sodium guradinal and diacapam for basal anaesthesia.

5. Xylocaine 2% for local analgesia.

6. F.P. apparatus.
7. X-ray machine with accessories and tilting mechanism.

8. X-ray films, developer and fixer.


10. 3" long No. 18. spinal needle.


P.P. apparatus:

For inducing pneumoperitoneum, a modified pneumoperitoneum apparatus was used which is shown in the figure No. 1. Two bottles, each of two litres capacity were used. The inverted high bottle has two openings. An airway is fitted in one opening while other opening is fitted with a glass tube which is attached to the glass tube of the second bottle by a rubber tube. A stop cock is fitted in rubber tube. The other glass tube is connected to the needle in peritoneum by rubber tube. The inverted high bottle contains two litres of sterilised water, while the second bottle contained approximately 250 c.c. of water. One glass tube was kept immersed in water of second bottle, while the other tube remains high. As the water starts coming down in the second bottle from the first bottle, the displaced air goes into the abdomen at a satisfactory rate under controlled pressure. The volume of the displaced air was calculated by measuring the
The apparatus used for inducing artificial trans-abdominal pneumoperitoneum.

**Fig. 1** - The apparatus used for inducing artificial trans-abdominal pneumoperitoneum.

**Fig. 2** - Positioning of the patient

(A) During establishment of pneumoperitoneum.

(B) During roentgenography, and

(C) During removal of the gas from the peritoneal cavity.
amount of water which comes in the second bottle from the first bottle.

Whenever double contrast pneumoperitoneum was used in our study, the hysterosalpingography cannula was used as a means of injecting the dye into the uterus. The cannula is a cone shaped instrument containing a ball valve mechanism.

**Technique of the 'single contrast' pelvic pneumo-gynecography:**

The examination is done on 8th or 9th day of the menstrual cycle. Ansari & Arronat (1966) experienced that spotting to mild uterine bleeding may occur if the test is done after 9th day.

A cathartic preferably castor oil 2 to 3 oz. is given in the night preceding the examination. Patient is kept nothing orally over night. A cleansing enema is given one hour prior the examination. 2 tablets of sodium garedinal (30 mg) is given orally one hour prior to the examination or 10 mg. of Diasepam is injected intramuscularly half an hour prior to the examination in nervous patients. Xylocaine sensitivity is done 15 minutes before the examination. Patient is instructed to empty her bladder just before the procedure.
A scout roentgenogram of the lower abdomen is taken to ensure the good preparation.

Now the abdomen is painted and draped, leaving a small portion of para-umbilical area exposed. Local anaesthesia 2-4 cms to the left and below the umbilicus is given by a spinal needle of 3" length. In patients having left sided scars or lump, a puncture 2-4 cms below the umbilicus in mid-line is made. The needle is slowly advanced until it reaches the peritoneal cavity. Two distinct 'pops' are felt as the needle is advanced, the first may be related to the puncture of the fascial plane anterior to the preperitoneal fat and the second signals entrance into the peritoneum itself. Obturator is removed to check the inadvertant blood vessel puncture. Now the needle is connected to the pneumoperitoneum apparatus. 1000 - 15000 c.c. of air is injected in the peritoneal cavity over 5 - 7 minutes. The patient is tilted head down during filling to prevent abdominal fullness. If the patient complaines of pain in abdomen, it is certain that the needle is in improper position and repeat puncture is made in such cases before proceeding. If the patient has no pain during filling, the total intended volume of air is delivered. The stop cock is closed and the needle is removed. Patients' abdomen is jiggled to displace coils of intestine out of
the pelvis. Now the patient is turned into the prone position. The table tilt is increased to 45 degrees head down. The X-ray tube is tilted 15 degrees from the vertical towards the head, resulting in 30 degrees pelvic inlet projection. Now the exposure is made with the central ray focussing at coccyx.

When the postero-anterior gynaecogram furnishes the desired information, the other exposures can be omitted. Occasionally special problems require other angles and projections.

The technical factors used are - Film focus distance 100 cms, 60 - 80 KVP, 70 - 90 MAS with conventional films and Bucky grid.

After satisfactory (wet reading) gynaecograms have been obtained, the patient is turned back into the supine position and the table-tilt is reduced to 20 to 25 degrees. Peritoneal puncture is again performed through the same anaesthetised site, a syringe containing 1 ml. of sterile saline or water is attached and the plunger is removed. When bubbling of the escaping air ceases, the needle is removed and the patient is removed from the table. Patient is advised not to sit up for 24 hours.

Technique of the 'double contrast' pelvic pneumo-gynaecography :

The single contrast pneumoperitoneum is induced
in the same way as above mentioned. Patient is kept in supine position. Perineum and vulva is painted and draped. Posterior vaginal wall is retracted by Sim's speculum and anterior wall of vagina is retracted by anterior wall retractor. The anterior lip of cervix is caught hold by velosellum. The hystero-salpingography cannula is inserted in the cervical os. Now anterior vaginal wall retractor, Sim's speculum and velosellum are removed from the vagina. Now the 7 - 10 ml. of dye is pushed and the exposures are taken. The films are developed. Vagina is packed.