*A Dissertation on*

# CYSTOSCOPY IN CARCINOMA CERVIX

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## BONAFIDE CERTIFICATE

Certify that the dissertation titled "**CYSTOSCOPY IN CARCINOMA CERVIX"** is a bonafide work of Candidate Dr.S.Nagasai Roll No. 20031556 who carried her dissertation under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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# INTRODUCTION

Invasive carcinoma of cervix has been considered a preventable cancer because of its long preinvasive state and screening for preinvasive lesions is easy compared to other malignancies.

Carcinoma cervix is the commonest site of female genital cancers and after the breast the 2nd most common site of malignancy in the female body. Approximately carcinoma cervix accounts for 80%, ovary 10%, uterine body 4-5% of genital cancers in India.

## RISK FACTORS

- There are numerous risk factors for cervical cancer:
- Young age at 1st intercourse (< 16 years),
- Multiple sexual partners,
- Race,
- High parity,
- Low socio economic status.

## ETIOLOGY

Infection with HPV mainly subtypes 16 and 18 seen in upto 62% of cervical carcinomas.

Mechanism by which HPV affects cellular growth and differentiation is by interactions of viral $E_6$ & $E_7$ proteins with P53 and Rb resulting in gene inactivation.

The squamocolumnar junction represents the labile transformation zone. The reserve cells lying beneath the columnar epithelium at the squamocolumnar junction form the metaplastic cells.

**Cervical Irritation and Infection**

Cervical trauma, chronic cervicitis and ectopy are no longer considered as aetiological factors in CIN or invasive cancer. Yet there are links between this disease and the presence of the herpes simplex virus (Type 2) and human papillomavirus (HPV) in the vagina. The evidence derived from epidemiological, antigen and antibody studies as well as molecular hybridization techniques demonstrates an association of these viruses with cervical carcinoma.

**COITUS**

The sexually active woman is two to four times more likely to develop cancer of the cervix than is the sexually inactive woman. Cancer of the cervix is almost unknown in groups of nuns, whereas cancer of the corpus occurs as frequently in these as in any other section of the population. The disease is rare in all virgins although there are occasional exceptions. Indeed, the practice of coitus is now established as being a prime cause of cervical malignant disease, intraepithelial or invasive. The earlier the age of first intercourse, the more the partners, and the more promiscuous the partners, the greater the risk. The

incidence of positive cervical smears amongst girls and women attending special (STD, genitourinary medicine) clinics is two or three times higher than that for all women of similar age.

Screening – Pap Smear

**Diagnosis**

**1. Cervical exfoliative cytology**

Although the findings on routine cytodiagnosis can be a means of stimulating the investigation which reveals an early symptomless invasive carcinoma, cytology is not a diagnostic method. Indeed, in 10-15 per cent of cases of clinically evident cancer of the cervix, smears remain persistently negative. This is because the actively malignant cells are deep seated or the exfoliated ones are degenerated and contaminated by inflammatory cells or blood.

2. Speculoscopy

3. Microcolpohysteroscope

**4. Colposcopy**

Shows abnormal vessels (loops, branches, reticular pattern), change in colour tone, erosion of surface epithelium.

5. Cervicography

**6. Biopsies**

The diagnosis can only be made for certain by microscopic examination of cervical tissue; biopsy is essential in every case where signs or symptoms raise the slightest suspicion, and this irrespective of whether cervical smears do

or do not contain malignant cells. The site of biopsy is usually clear when the disease is clinically evident and in most cases a biopsy can be obtained without the necessity for an anesthetic. Unless a cone biopsy is taken, curettage of the endocervix is also essential to exclude an endocervical tumour.

**Symptoms**

- Post coital bleeding
- Offensive vaginal discharge
- Cachexia
- Pain
- Painful frequent micturition
- Incontinence of urine (VVF)
- Painful defecation (Proctitis)

**SIGNS**

- Cervix bleeds on touch
- Friability
- Cervix is fixed and loses its mobility because of malignant infiltration or parametritis due to infection.
- Induration of cervix

**COMPLICATIONS**

Pyometra - The Cancer obstructs the cervical canal and is also a focus of infection; pyometra is therefore common.

Vesicovaginal and vesicocervical fistulas

Rectovaginal fistula. This is rare in untreated cases.

Hydronephrosis and pyonephrosis caused by ureteric obstruction.

Uraemia. This is caused by renal failure due to a combination of infection and ureteric obstruction.

The ultimate causes of death in their order of frequency and importance used to be uraemia; cachexia associated with recurrent haemorrhage; infection and interference with nutrition; complications of treatment; and remote metastases in vital organs (rare). With improved radiotherapy, uraemia is less common in developed countries as the main cause of death.

**FIGO STAGING**

The FIGO staging (1995) has been devised to allow comparison of results of therapy from various centres.

Stage 0 : Pre-invasive carcinoma (Carcinoma in situ)

Stage 1 : Carcinoma strictly confined to the cervix

1A : Preclinical carcinomas (Microscopically detected lesions)

1A1 : <3 mm invasion

1A2 : Microscopically detected measurable lesions.

Invasion >3-5 mm from the base of the epithelium, horizontal dimension 7 mm.

1B : Invasion >5mm

1B1 : Lesion ≤ 4 cm in diameter

1B2 : Lesion >4 cm in diameter

**Stage II** : Carcinoma extends beyond the cervix but not onto the pelvic wall. Carcinoma involves the vagina but not the lower one-third of vagina.

IIA : No obvious parametrial involvement

IIB : Obvious parametrial involvement

**Stage III :** Carcinoma has extended onto the pelvic wall.Carcinoma involves the lower one-third of vagina

IIIA : No extension to pelvic wall

IIIB : Extension on to the pelvic wall and /or hydronephrosis or non-functioning kidney.

**Stage IV :** Carcinoma has spread beyond the true pelvis or involved bladder or rectum mucosa.

IVA : Spread to adjacent organs

IVB : Spread to distant organs

**PRE TREATMENT EVALUATION**

1. Histopathological confirmation and documentation of lesion
2. Evaluation of patient in preparation for therapy, surgical and anesthesia fitness.
3. FIGO staging
4. Ascertain psychological impact of disease on patient and family.

**TESTS RECOMMENDED FOR FIGO STAGING**

1. Complete physical examination, pelvic and rectovaginal examination, under anesthesia if necessary
2. Chest X-ray
3. Intravenous pyelography
4. Cystoscopy
5. Proctosigmoidoscopy

6. Colposcopic directed biopsy/direct biopsy for histology and grading.

7. Endocervical currettage

8. Bone survey if symptomatic

Ureteral orifices are notorious in their being able to hide and escape detection. Hence, cystoscopy along with other base line investigations plays an important role in gynecological investigations.

**Prognosis**

Irrespective of the type of treatment the prognosis depends on the following.

**THE EXTENT OF GROWTH AT THE TIME OF TREATMENT**

This is the single most important factor.

**SITE**

An endocervical growth is potentially more dangerous than one which grows on the vaginal surface because it is diagnosed relatively late, and it spreads to the broad ligaments and to lymph nodes relatively early.

**NAKED-EYE APPEARANCE**

**T**he hypertrophic, florid, massive growth filling the upper vagina generally carries a bad prognosis - even if it does not appear to have spread much beyond the cervix.

## HISTOLOGY

An adenocarcinoma offers relatively unfavourable prospects not because it is less radiosensitive than a squamous cell growths as it inferior as once believed. Groups of cases of adenocarcinoma certainly show a much inferior salvage rate but this is because they include cancers in young women and more cancers in an advanced stage. Since adenocarcinoma is usually endocervical in site, it is discovered and treated relatively late. If the results of treatment are properly controlled by matching cases by age of patient, stage of growth and other factors, there is no difference between those of the two cell types. The same applies to mixed adenosquamous growths in older women but not in women under 40 years of age.

Among the squamous cell growths, the well-differentiated are to be preferred because they grow slowly and metastasize late. It is sometimes suggested that they are more radiosensitive but the widely accepted view is that the anaplastic tumours have the advantage in the respect. The presence of lymph-vascular space invasion (LVSI) is associated with a poorer prognosis.

## AGE

The younger the patient the more likely is the growth to be poorly differentiated in type and the worse the outlook.

## URETERIC OBSTRUCTION

If, at the outset of managing a case, pyelography reveals unilateral or bilateral ureteric obstruction, the ultimate outlook is poor.

It is now reorganized that in 15-20 per cent of those cases graded as Stage I, 33 per cent of those graded as Stage II and 45 percent of those graded as Stage III, the lymph nodes on the pelvic wall area already invaded with cancer. In stages IIB and III growths, the para-aortic nodes are often involved as well.

# AIM OF THE STUDY

To evaluate the involvement of the lower urinary tract in various stages in carcinoma cervix by means of a cystoscope and for planning the treatment.

- It is used for proper staging of carcinoma cervix.
- For selection of cases for surgery or radiotherapy or combined therapy.
- To evaluate the prognosis.
- To determine whether clinical staging of disease remains the same when cystoscopy is used or whether the stage is upgraded or downgraded.

**Importance of Cystocopy in Carcinoma Cervix**

Cystoscopy is included in FIGO staging it should be routinely done in all cases of Carcinoma Cervix to correctly stage the disease and plan the management.

Cystoscopy is even used for the follow up of patients with carcinoma cervix after surgery / radiotherapy.

The following are the features of Cystoscopy in carcinoma cervix

- Bladder infiltration
- Reduced bladder capacity due to infiltration
- External pressure due to the tumour
- Increased vascularity with or without varices.
- Petechial haemorrhages.
- VVF
- One or both ureteric orifices in cases of massive involvement of bladder.

# DEVELOPMENT OF THE CYSTOSCOPE

Endoscopy of the human bladder and urethra, has the advantage that these structures are accessible with a rigid instrument. The history of the development of the rigid telescope for urology was preceeded by the use of straight tubes. Light from an external source passed down the tube and the observer had to place his eye in line with the end of the tube. The lichtleiter designed in 1804 by Philippe Bozzini of Frankfurt was the first instrument to make use of external illumination. Wallace (1973) described how he had discovered one of these instrument, made of silver and protected with shark skin.

It is not known whether Pierre Ciglas knew of the Bozzini lichtleiter but he described an instrument with lamp on a very similar principle using two mirrors and two candles. With this instrument he was able in 1826 to observe the face of urethral stricture

In 1927 Fisher of Boston, described an endoscope with two reflector mirrors and also incorporated a primitive lens system, to improve the image but again the illumination was poor. Another endoscope for inspecting even the bladder and stomach was said by Fisher to have been designed by Bombalgini in the same year. Yet another endoscope was designed Heurteloup in 1827, but whether this design was ever used in practice is questionable.

The most convincing claim for the success of endoscopy amongst the early instrument was by Ciglas, who stated in a three year old girl silver sound proved the presence of a large calculus and examination of the urethro cystic

speculum led to believe, it was composed of calcium, that is to say very friable, which enabled to use lithoritory for its removal.

During the next 25 years similar viewing specula were designed Guillon (1883), Nelaton in 1950 and finally by Desormeaux in 1853. In this endoscope he had augmented the flame by using a mixture of alcohol and turpentine. In addition he added a focussing lens to concentrate the illumination. By 1865 he published his Traits de Endoscope which described his experience with various endoscopic instruments over a period of 20 years. Desormeaux was probably the first person to perform internal urethrotomy under endoscopic control using a probe pointed knife along the groove in the side of the speculum. He also claimed to have excised a papilloma from the urethra.

**ILLUMINATION**

Cruise of Dublin, in 1865, introduced the glass window for his endoscope and again amplified the illumination by using a mixture of petrol and camphor. He could also adjust the height of the flame, so that it could be centered in the exact position to give the maximum light through the condensor lens. Both the instruments of Desormeaux and that of Cruise incorporated the simple principle of a mirror with a small piece of silvering scraped away and held at 45 degree to the observers line of sight, which had been originally described by Babbage in 1847 (Wharton Jones, 1854 for ophthalmoscopy). The field of view of all these instruments was no longer than the diameter of the distal end of the canula. So that the difficulty in orientation does credit to the perseverance of these early endoscopists.

Two years after Cruises description of his endoscope Julius Bruck (1867) tried to illuminate the bladder by means of an electric lamp in the rectum, the intention being to diffuse sufficient light into the bladder to be able to observe with the speculum via the urethra. This diaphanoscope, though ingenious in concept was a failure in practice. Murphy (1972) the first surgeon to catheterize the ureters successfully, Josef Grunfield 1876, used malleable fine catheters introduced along side his glass ended endoscope.

In 1877, distal illumination was incorporated into the cystoscope. This primitive instrument employed a heated platinum filament which was cooled by a continuous stream of water passed through a separate circuit within the sheath. Two years later in 1879 Leiter of Vienna, who was an instrument maker, he was already experimenting with an electro-endoskopische instrument. Although the illumination was better than anything previously designed, it was not until the Edison incandiscent lamp was invented in 1880 and subsequently incorporated in the cystoscope by David Newman of Glasgow in 1883, that endoscopy became a practical procedure. By 1889 Nitze had been able to take some of the earliest endoscopic photograph. From this time, the telescopes rapidly improved until by 1920's the cystoscope had become a standard piece of urological equipment.

Andrews in 1867 improved on the instrument of Desormeaux and Cruise by burning a strip of magnesium wire and he claimed that he could see the urethra as though dissected out and laid in bright sunlight. It was when Nitze moved to the clinic of Professor Dettel in Vienna that he met Leiter and there

between them they developed both the improved illumination and the first telescopic system of lenses.

Although the credit for the first incandescent lamp is given to Edison it seems likely that the idea was developed by Swan two years earlier, though he failed to lodge the necessary patent.

Boisseau du Rocher designed an instrument which he called the `Megaloscope' which had an optical system better than that of the Nitze and Leiter cystoscope, but was lacking in illumination and had not successfully in corporated the incandescent lamp.

**ADDITIONAL EQUIPMENT**

One of the most valuable developments in the early endoscope was the lever designed by Joachim Albarran (1897), to control the tip of the uretheric catheter in order to guide it into the uretheric orifices for retrograde pyelography.

The complete endoscopy was described by Fenwick in 1888. Today the ancillary equipment for endoscopy has increased not only in weight and bulk but in versatility and constructional detail. The addition of the teaching attachment with cameras, video-tape recorders and television has now resulted in endoscopy.

**THE EARLY OPTICAL SYSTEM**

Boisseau du Rocher (1889) developed the first efficient optical system. He used a separate sheath and illumination was introduced to dispense with the

small wheat-ear bulbs which were so liable to blow at the critical moment in an endoscopic examination. Third, there was the improvement in the range of optical glass available for more accurate measurement in the grinding of these micro lenses and the improved coating of the lenses to reduce the reflection at the glass interfaces.

**THE OPTICAL PRINCIPLES OF ENDOSCOPE**

The telescope consists of an eye piece lens and an objective lens. In order to obtain an adequate field of view and to transmit the light down the endoscope a series of relay lenses is required. If an odd number of lenses is used an erect image will be obtained. Whereas if even number of lenses are placed in the system, then the image will be inverted. The relay system can be improved and the amount of light transmitted can be increased if field lenses are added to the points where the real images are formed in the transmitting system. The lenses are separated by spacers which consists of metal sleeves fed down the inside of the telescope tube to give the appropriate distance between the various lenses.

In 1960 Hopkins had perfected the solid rod lens system. The urological endoscopes are designed to be in exact focus when the object being viewed is exactly 20mm from the objective lens. Every telescope must be fitted with a correcting device to adjust the inversion which occurs in all transmitting system so that the image itself can be viewed the correct way up.

The urologist requires four distinct angles of views, direct vision, fore oblique, 70 degree and 120 degree. Direct vision is straight ahead view with no angulation of the field. This is described as `O' telescope. Direct vision is

suitable for viewing the urethra, the mid posterior wall of the bladder and the interior of the diverticulam. For viewing the bladder the optimum angle of view is 70 degree or 90 degree. The field of view is the area of the bladder covered by the lens at the objective end of the telescope. A fore oblique view, which is the optimum for operating presented certain optical difficulties. The reason for requiring fore oblique view for operating is that they traverse through which the operating instrument passes, such as for example the loop of a resectoscope moves in an area between direct vision and 70 degree.

**FIBRE OPTICS**

The principle of fibre optics is that if all fibres of a glass fibre bundle are lying in identical relationship to each other at the entry and exit points, then an image can be transmitted. This is referred to as coherent fibre optic cable.

**FIBRE ILLUMINATION**

Illumination by the conventional endoscopic bulb gave a limited amount of light. Though this was sufficient for a visual inspection it was certainly inadequate for satisfactory endoscopic photography. This amount of light that can be transmitted down glass fibre bundles depends on the length of the cable. Fibre light cables are highly flexible and matching cables should be used.

# THE ARMAMENTARIUM FOR ENDOSCOPIC INSPECTION

## THE INSPECTION SHEATH

The optimum size is 20F. The beak of the sheath should be small. This allows satisfactory use of the direct vision (O) telescope. If the beak were longer then it would be impossible to see down the urethra. It is also important to ensure that the foramen at the lip of the sheath is cut away sufficiently to allow the 120' telescope to be used. The telescope is fixed within the sheath. The water supply on the inspection sheath is usually a single channel.

## CATHERIZING SHEATH

For passing catheters on instruments such as ureteric calculus extractors up the ureters a larger sheath is required with one or two insertion channels. For catheterizations the channel must accept a catheter of 4 or 5F. The minimum size of sheath that will take the telescope as well as a 5F catheter is approximately 21F. If two catheters need to be passed then the calibre probably has to go up to 23 F will be necessary.

## THE OBTURATOR

All endoscope sheaths that are designed for inspection for ureteric catheterisation or for operating, will be supplied with an obturator.

## INSERTS FOR INSPECTION SHEATH

The inspection sheath is not the full length of the shaft of the telescope. Therefore an insert has to be added to take up the extra length of the telescope

and it is on this insert that the guide channel for catheters, uretheric stone extractors or even cystoscopic biopsy forceps are introduced. The insert may have a channel, it may have a fin to divide the channel into two for bilateral uretheric catherterization and it may have an Alberran lever to adjust the tip of the uretheric instrument in order to negotiate the uretheric orifice. Other instruments today have no lever but merely an angulation of the channel so that the catheter is poised in the middle of the field of view.

**TELESCOPES**

30' and 70' telescopes are available.

In the female 70' telescope is used.

**URETERIC CATHETER**

| | |
|---|---|
| Length | 25cm. |
| Size | 3-6 F are available. |

**BRIDGE**

Bridge is attached to the sheath before introducing the telescope.

**BIOPSY FORCEPS**

Biopsy forceps is used to take biopsy of bladder mucosa and any growth of the bladder.

**CYSTOSCOPIC PROCEDURE**

A combined lubricant, antiseptic and anaesthetic gel is squeezed into the urethra. This produces only the mucosal anaesthesia and therefore dilatation can be painful. The female urethra can be dilated with dilators. When the patient is lying on the couch, the urethra is approximately horizontal, so the instrument needs to be introduced with the movement. Sometimes difficulty occurs at the vesico-urethral junction which forms a mucosal ring which catches the beak either anteriorly or posteriorly. If an index finger is introduced into the vagina, the beak of the instrument can be felt through the anterior wall and guided into the bladder. The same method can be used with advantage if there is distortion by tumor growth in or adjacent to the urethra.

When the cystoscope is in the bladder, the telescope is removed so that any urine can be run out. This is measured as an estimate of residual urine. It is easier and more practical to remove the telescope in order to empty the bladder rather than to use the second tap on the instrument. One tap is used for inflowing fluid and the second can be attached to a monometer.

The telescope is then reintroduced and locked in place, the light and the fluid switched on and the examination begins as the bladder fills. Filling must not be so quick that it becomes unpleasant for the patient. The field of vision is a cone with an apex of nearly 90° whose axis is about 70° to the axis of the cystoscope. It is unnecessary to wait until the bladder is full before beginning inspection, for much information can be deducted from the way the bladder walls move outwards. When all walls are visible, the water is turned off. Sterile water, normal saline can be used. If $Co_2$ is used it is called $Co_2$ urethroscopy.

The patient first sensation that the bladder is getting full often comes when 200-300 ml has run in and this amount should be noted. When filling is done slowly, the information obtained in this way is reliable.

The view through the cystoscope is extremely good, so that the various parts of the mucosa, the ureteric orificies and the internal meatus can be examined with ease. If may be necessary to remove the telescope once or twice so as to produce a clearer field under these conditions, the whole examination is conducted with the water turned on. The same procedure is used in haematuria, when there is source of bleeding in the bladder. It is possible in this way to identify small bleeding arterioles.

With the cystoscope in the moderately filled bladder the objective is to inspect the whole of interior. There are two land marks which can aid orientation, the internal urinary meatus and the air bubble. If the cystoscope is drawn outwards, while the bladder wall is under observation in any direction, the ring of the internal meatus will come into view and obscure vision completely. Further out, the lens lies on the urethra where one must have irrigation fluid running to be able to see anything. As soon as the internal meatus comes into view with the operator looking at the trigone, it is then rotated 20 or 30 degrees to each side and passed slowly inwards along the same axis. The ureteric orifice normally comes into view 3 cm from the internal meatus.

If one fails to find an orifice by this method, there is another way which is worth trial with the cystoscope lens pointing directly anteriorly or at the ceiling in the lithotomy position, the highest point of the bladder comes into

view and here is to be found the air bubble. There is always an air bubble in the highest point of the bladder due to the air that is in the cystoscope when it is introduced. The cystoscope is then rotated through a little less than 180° without altering its axis or moving it in or out and a uretric orifice should come into view. In some bladder the inner ureteric bar is prominent and will lead the observer to an orifice if followed in a lateral direction. There is much to be said for learning both these methods of finding ureteric orifices for it is not always easy. There is a natural tendency to a little variation in position, the orifice may be absent or duplicated and also in just those cases where it is necessary to find and catherterize an orifice, it is obscured by inflammation, oedema or tumor. Further more the bladder base can some times be grossly distorted by tumor formation in the pelvis, both ureteric orifices may lie on the same side of the midline.

The bladder mucosa is then inspected in all directions always referring to either the air bubble or the internal meatus if one becomes disoriented. The bladder is never spherical. The posterior wall is pushed forwards by the uterus and two large comparatively large lateral pouches are normal findings. The mucosa is a light yellow colour with small blood vessels visible superficially. It forms small folds which flatten out as the bladder fills. On the trigone the mucosa is fixed to the underlying muscle and always flat. It may also be a little more pink and granular here. This is not pathological but something which varies with the menstrual cycle and with age. It is a normal condition that has been described as trigonitis. Real infection produces redness and oedema, some times to the extent there is bleeding on distention. Indwelling catheters produce gross local irritative changes in the bladder mucosa on the posterior wall

because of contact between the tip of the catheter and the mucosa over a limited area. This can be mistaken for a tumor.

**URETHEROSCOPY**

This is best done after completion of the examination of the bladder and it must be done with fluid running into the bladder all the time. One must remember to begin by emptying the bladder. The vesicourethral junction is first identified at 12.0°Clock position and the instrument drawn slowly out until the lens of the telescope reaches the external meatus. The urethral walls will be moved outwards by the stream of water, so that they come into focus and folds will be smoothened out. The instrument is then passed in and the examination is repeated in 3° Clock direction and so until one has seen the whole urethra. It is easy to recognise parts which do not expand and move outwards and to identify their position by means of a finger in the vagina. The opening of a diverticulum or a fistula can usually be seen without difficulty. If there is infection in the urethral glands, the openings can be seen in the distal part surrounded by red areas.

An additional direct field telescope can be obtained which allows visions in its own axis like a nautical telescope. The advantage of this is that is that it gives the operator a view of the whole urethra from the lower end, so that the movement of the vesico urethral junction during coughing and straining is visualized easily.

## ANATOMY OF THE URETER

The ureters are tubular structures which serve to conduct the urine from the kidneys to the urinary bladder.

Each ureter starts from within the renal sinus, as a funnel shaped dilation called the pelvis of the ureter. The ureter proper runs downwards and medially on the psoas major crosses the pelvic brim to enter the pelvic cavity where it ends by opening into the lateral angles of the bladder.

In adult the length varies from 28-32 cms. The left ureter is longer than the right ureter by 1 cm., varying from the position of the kidney. The outer diameter of the ureter averages 4-5 mm. The inner diameter has 3 constrictions.

1. At the uretero pelvic junction.
2. At the crossing of the ureters over the iliac vessels.
3. Intramural portion of the ureter.

Each ureter has an abdominal and pelvic portion. The abdominal portion begins at the uretero pelvic junction approximately at the level of the transverse process of the first lumbar vertebra and continues to the brim of the true pelvis. The pelvic portion enters the pelvis crossing over the common iliac artery just medial to its bifurcation.

It descends along the lateral pelvic wall retro peritonealy beside the hypogastric vessels. At the level of ischial spines it follows a medial and anterior course to enter the base of broad ligaments. At the vaginal fornix, approximately 2 cms, lateral to the cervix, the ureter lies just beneath the

uterine artery and above the vaginal artery. Here it continues through the vascular web in the utero vaginal fascia, crossing the upper anterior vagina to enter the bladder at the trigone.

**BLOOD SUPPLY**

1. Abdominal ureter is supplied by branches from aorta, renal and lumbar arteries. Pelvic portion is supplied by branches from vesical, urterine, hypogastric and obturator vessels, communicate in the adventitia and sub mucosal coats. These plexuses intercommunicate by perforating tributaries.

**LYMPHATICS**

Everette in 1947 found 3 groups of lymphatics.

1. Upper draining into renal group.
2. Middle group to lumbar nodes.
3. Lower group to cervical lymph nodes.

**NERVE SUPPLY**

Intrinsic supply is probably responsible for the peristalsis. Extrinsic nerves from the lower renal ganglia, Aorta, hypogastric and pelvic plexuses. Harton believes the extrinsic to be mostly sensory and that these are nerve connections between ovaries and ureters. Learmouth showed that the hypogastric nerve is motor to circular muscles and inhibitory to longitudinal muscle.

**IDENTIFICATION**

1. Identification of the pelvic ureter is best accomplished at the brim of the pelvis, in the area where the ureter crosses the iliac vessels. The ureter is then traced to the area of the lesion. It is usually of advantage to reach the ureter above a lesion with its accompanyiang inflammatory changes other than to plunge at once into the depth of the pelvis. There is no difficulty in identifying the external iliac artery with its distinct pulse and this vessel can be traced to its origin at the bifurcation of the common iliac. The ureter is crosses the external iliac artery and usually over the left common iliac artery.

2. When the ureter has to be identified a thumb can be placed on external iliac artery, allowing the index finger to slide along the side wall of the pelvis where the internal iliac artery is noted by its pulsation, the ureter can be usually found in the inner aspects.

3. The sacral promontory is another guide, as the ureter dips into the pelvic inlet in the groove of the sacroiliac joint.

4. The ureter is medial to the ovarian vessels beneath the peritoneum.

The bladder lies anterior to the vagina and lower uterine segment and posterior to the symphysis pubis. The bladder base and the urethra lies against the anterior vaginal wall separated by a thin layers of endo pelvic fasica. Bladder lymphatics originates from 2 plexuses viz., on the anterior surface and the other on posterior bladder surface. The lymphatic afferents from the anterior surface drain into the anterior vesical and external iliac nodes. These

lymphatics from posterior surface anastomose with lymphatics from the external and the upper vagina and empty into the internal iliac group of lymph nodes.

## ANATOMY OF THE BLADDER AND URETHRA

The bladder and urethra should be thought as one anatomical unit. It is divided into the dome or vault, the bladder bass (which includes the trigone and the urethra). The bladder base and urethra have more muscular layers and a greater nerve supply than the bladder dome. It is not easy to define the exact anatomical boundary between the bladder base and the urethra because it is based more on physiological properties than on a distinct anatomical situation.

## EPITHELIAL LINING

The lining is transitional epithelium known as urothelium, resting on a sub muscosa containing blood vessels and lymphatics which allows considerable mobility of the epithelium every where except on the trigone, where it is firmly fixed to the underlying muscle. The transitional epithelium in the urethra normally alters to nonkeratinishing squamous epithelium in the lower quarter without any sharp line of demarcation. In elderly women, the whole length of urethra can be lined by squamous epithelium and in young women it is lined by transitional epithelium.

## THE DOME

In the embryo the musculature consists of three smooth muscle layers, but after birth all layers are merged together. The thickness increases towards

base, where the layers are more apparent, though they can never be completely separated from one another. The internal coat is much thicker and stronger and is formed like a net work of muscle bundles. This layer was originally called the detrusor muscle, but this name is used to mean all three layers. The internal coat can be seen through the cystoscope and produces the appearance known as trabeculations.

**THE BLADDER BASE AND URETHRA**

Three things have clinical significance

1. The blood supply of the urethra far exceeds the needs of nutrition.

2. The circular smooth and striated muscle fibre in the urethra are so thin and apparently disorganised in the adult woman that a sphincetric effect based on muscular contraction alone seems doubtful.

3. The different structures in the urethra undergo considerable changes with age.

**RELATIONS**

The peritoneum covers the dome of the bladder, to which it is loosely attached and then dips down infront between the bladder and the pubis to form the shallow prevesical pouch. The posterior wall of the bladder lies infront of

the lower part of the body of the uterus and the trigone is on the front of the anterior fornix of the vagina. Lateral to the ureteric orifices, there is a quite a considerable pouch of bladder wall, which when distended reaches outwards over the levator ani muscles nearly to the pelvic wall. When the bladder is empty, the posterior wall is incontact with the internal urinary meatus and the dome does not reach to the level of the top of the symphysis pubis.

The urethra passes through urogenital diaphragm, which is really the deep transverse perinei muscle and the facial layers above and below it. The bladder base rest on the pelvic floor so that the inner part of the pubo coccyges is only 2-3 mm from the lateral aspect of the urethra.

**BLOOD SUPPLY**

1. Superior and inferior vesical arteries.
2. Twings from obturator and inferior gluteal arteries.

**VENOUS DRAINAGE**

Vesical plexus of veins.

**LYMPHATIC DRAINAGE**

Internal iliac nodes.

**NERVE SUPPLY**

Sympathetic - $L_1$

Parasympathelic - $S_2$, $S_3$, $S_4$

## DEVELOPMENT OF URINARY SYSTEM

The secreting part of the kidney develops from the metanephric cap of the intermediate mesoderm. The conducting part and ureters develop from the ureteric diverticulum arising from the distal end of the mesonephric duct (Wolfian duct). The lining epithelium of the major part of the urinary bladder is formed from the vesicourethral canal. The allantois contribute for a small part near the apex of the bladder. The terminal portions of the mesonephric ducts get absorbed in its walls and form the trigone of the bladder. The musculature is derived from the surrounding mesenchyme. Urethra develops from the lower part of the vesico-urethral canal.

**ANATOMY OF CERVIX**

The cervix is barrel-shaped, measuring 2.5-3.5 cm from above downwards. Half of it projects into the vagina (vaginal cervix or portio vaginalis) while half is above the vaginal attachment (supravaginal cervix). The vaginal part is covered with squamous epithelium continuous with that of the vagina. The supravaginal part is surrounded by pelvic fascia except on its posterior aspect where it is covered with the peritoneum of the pouch of Douglas. A spindle-shaped canal, disposed centrally, connects the uterine cavity with the vagina. The upper part of the cervix is composed mainly of involuntary muscle, many of the fibres being continuous with those in the corpus. The lower half has a thin peripheral layer of muscle (the external cervical muscle) but it otherwise entirely composed of fibrous and collagenous tissues.

The mucous membrane lining the canal (endocervix) is thrown into folds which consists of anterior and posterior columns from which radiate circumferential folds to give the appearance of tree trunk and branches,hence the name arbor vitae. This arrangement is most obvious in the young nullipara in whom the irregularity of surface can make the passage of a sound difficult.

Histologically the endocervix differs considerably from the endometrium. It is covered by a single layer of tall columnar epithelial cells which, on the tops of the folds but not in the crypts and glands, are ciliated. Beneath this is a layer of more cubical `basal' or `reserve' cells from which new surface cells are believed to develop and undergo squamous metaplasia.

The surface epithelium dips down to form complicated glands and crypts which number approximately 100. They penetrate the fibromuscular tissue and lie in a stroma more fibrous and dense than that of the endometrium. The epithelium of these glands is taller than that of endometrial glands and the nuclei are always basal in position. The acini secrete an alkaline (pH 7.8) mucus, a gel rich in mucoproteins, muopolysaccharides and fructose, the last having a nutritive function for spermatozoa. The physical and chemical properties of cervical mucus vary with the time in the menstrual cycle and with pregnancy.

Cervical mucus is an important constituent of the normal vaginal discharge but some of it lies in the cervical canal to form a `plug' which provides functional closure of the cervix. This plug prevents vaginal bacteria from invading the uterus by its mechanical and, probably, bacteriolytic properties.

The junction of the squamous epithelium covering the vaginal cervix and the columnar epithelium of the endocervix is normally situated at the external os. It is usually sharply defined by an abrupt change in cellular type but there may be a transitional zone 1-10 mm in width with variable histological features.

**BLOOD SUPPLY**

Uterine and vaginal arteries

## LYMPHATIC DRAINAGE

Lymphatics from the cervix run in the uterosacral ligaments and in the cellular tissue beneath these to the obturator, external and internal iliac, and sacral nodes. There is a plexus of lymphatic vessels, and rarely one node, in the broad ligament beside the cervix. The internal and external iliac nodes communicate with those around the common iliac vessels and ultimately with the para-aortic groups.

## SQUAMOUS CELL CARCINOMA

Squamous cell carcinoma usually starts in the area of the squamocolumnar junction (transformation zone) as described above. Occasionally, however, it arises in the endocervix, sometimes deep to the lining. Even if not all squamous cell growths begin in reserve cells, those developing in the endocervix almost certainly do.

Squamous cell carcinoma of the cervix is seen in the microinvasive and invasive forms. Some invasive cancers of the cervix are hypertrophic or exophytic, producing a cauliflower-like mass; others are mainly eroding and ulcerative or infiltrative. An early growth can simulate an erosion. The squamous cell carcinoma has histological features similar to those of an epithelioma in any site except that pearl formation is unusual.

About 20 percent of the tumours are of the well-differentiated type (often known as `large cell keratinizing tumours'). Moderately differentiated tumours (`large cell non-keratinizing tumours') constitute about 60 per cent of the total. The remaining 20 percent are poorly differentiated (`small cell non-

keratinzing tumours'). However, biopsies taken from different areas of the same tumour often show different degrees of differentiation and different predominant cell types.

Two distinctive histological variants of cervical squamous cell carcinoma merit mention; some, usually of the well-differentiated type, have cells which contain abundant glycogen and thus appear as `clear' cells, whilst occasionally the poorly differentiated tumours assume a spindle-shaped cell form and so resemble a sarcoma.

**Spread**

**DIRECT EXTENSION**

By this mechanism the growth spreads to the body of the uterus, the vaginal wall, the bladder, and the cellular tissues of the broad and uterosacral ligaments. Direct invasion of the rectum is rare because the pouch of Douglas intervenes. In the broad ligament the growth surrounds and constricts the lower ends of the ureters but does not invade them. Similarly, when it reaches the pelvic wall and the sacral plexus, it cause sciatic pain but the nerves and their sheaths are never demonstrably penetrated.

**LYMPHATIC PERMEATION AND EMBOLISM**

Spread by the lymphatics in the bases of the broad ligaments and in the uterosacral ligaments is an early feature, the nodes most commonly involved being the obturator, external iliac and those at the bifurcation of the common iliac vessels. Others are the internal iliac, common iliac, sacral and ultimately the para-aortic nodes.

**BLOOD STREAM**

This route is much less frequently used but embolic metastases are occasionally seen in the ovary, brain, bones and lungs. The occurrence of distant metastases without simultaneous involvement of the lungs is explained by the transfer of cancer cells by the vertebral venous plexus.

# REVIEW OF LITERATURE

Everette et al found out the changes in the urinary tract, as there were two cases of V.V.F. following radiotherapy. He started the work in 1929 and reported in 1939 that there was involvement of bladder and ureters in 20% and 15% respectively. The pretreatment cystoscopic examination of the bladder may disclose unsuspected carcinomatous invasion in this viscus and thus leads to classification of a case an stage IV with or without such examination might have been classed in an earlier stage. He concludes that urologic studies at varying intervals following the complete of treatment gives further aid in predicting prognosis and at times afford the first clue to suspected recurrence or persistence of cancer.

Hendrikson (1949) noted that 43% patients with ureteral obstruction had pelvic lymph nodal involvement with tumour. For these reasons, involvement of urinary tract by cervical cancer is of prognostic significance.

In Kerrs series, the site of involvement in 123 cases was ureter alone in 59 cases, ureter and bladder in 38 cases, bladder alone in 26 cases. The obstruction was found to be at the ureterovesical junction in a patient in whom bladder was also involved. In other patients in whom bladder was not involved, the obstruction was found to be at the pelvic brim. In his series, ureteral obstruction was found in 50% of cases initially in other quarter in the first year and in the rest it appeared later. Ureteral involvement alone may be due to infiltration into periureteric lymphatics which in turn produce the compression.

In Williams series, 27% showed some degree of urinary tract dilatation before treatment was initiated. This varied in severity from hydronephrosis in early cancer to an unquestionable hydronephrosis and hydroureter in stage II malignancy. In stage I and II 18% was involved. In Stage III 41% was involved. These findings substantiate the belief that the advanced cases with definite parametrial invasion are more prone to the associated with urinary tract dilatation.

In Van Negalls series 2.8% of cases with palpable evidence of stage I carcinoma actually had obstructive uropathy. The incidence of obstructive uropathy increased to 38% in stage IV. No patient with early disease had bilateral obstruction. However bilateral lesion occurred in stage III and IV Van Negall's series.

**LOCATION OF URETERIC OBSTRUCTION**

| | |
|---|---|
| Uretero vesical junction | 33 |
| Distal third | 36 |
| Middle one third | 2 |
| Proximal one third | 1 |
| Non functioning kidney | 14 |
| Total | 86 |

**CYSTOSCOPIC FINDINGS IN VAN NEGALL'S SERIES**

| Stage prior to cystoscopic | Patient | Invasive carcinoma | Mass elevating bladder | Bullous oedema | Bladder infiltration | VVF |
|---|---|---|---|---|---|---|
| I | 177 | 0 | 0 | 1 | 4 | 0 |
| II a | 40 | 0 | 2 | 0 | 0 | 0 |
| b | 147 | 0 | 6 | 5 | 3 | 0 |
| III a | 7 | 0 | 1 | 0 | 0 | 0 |
| b | 133 | 27 | 41 | 6 | 0 | 0 |
| IV | 79 | 18 | 5 | 1 | 0 | 2 |
| Total | 583 | 45 | 55 | 13 | 7 | 2 |

In Herban's Singh's series, 50.66% did not give only history of urinary trouble. In his series the commonest complaints were:

1. Increased frequency (20%)
2. Dysuria (15.35%)
3. Haematuria (6%)

Other complaints being:

1. Incontinence (4%)
2. Ch.retention (2%)
3. Nocturia (1.33%)
4. Pyuria (0.66%)

He noticed that the incidence of involvement increased progressively with the clinical staging

Gemmel and Todd have reported on the Cystoscopic findings in long series of patients and observed the following vesical changes according to age and character of neoplasm.

1. Mechanical pressure
2. Early signs of invasion were

a. Increased vascularity with or without varices.

b. Petachial haemorrhages

c. Diffuse or bullus oedema of vesical mucosa which overlies the neoplasm.

3. Transverse ridging.

The findings in the order of frequency are, Normal 22.66% actual infiltration including VVF 28.33% congestion 19.33%, external pressure 14.35%, petechial Haemorrhage 90.66%,Oedema 5.66% Roughening, Thickening 3.35% Trabeculation and saculation 2%, gross haematuria 1%.

He is of the opinion that the division of cases according to FIGO classification by bimanual examination is open to errors because of the difficulty or lack of precision in distinguishing the actual neoplasm from inflammation which may be co-existing secondly vaginal examination is inconclusive in borderline cases in deciding operability. The cystoscope may provide evidence regarding involvement of bladder which should not be neglected.

A normal cystoscopic picture is regarded by many workers (Zangameister, Popoff, Luya) as reliable evidence that no difficulty will be encountered in separation of uterus from the bladder. This view is not universally accepted (Schauta and Hochloff).

Corscaden analysing 1,000 cases of cancer cervix reported that bladder was normal in 81% of cases. In 17.4% the mucosa was distorted by external pressure of invasion. In 1.6% cases, cancer has involved the bladder.

Todd in another series of 1,000 cases of cancer cervix found 195 cases of stage III cases. The cystoscopic examination in stage III revealed bladder involvement in 44 cases, thus making these stage IV instead of stage III making an error of 21% which gravely alters the line of treatment add prognosis.

This emphasises the importance of cystoscopic examination. Gemmel findings in 300 cases recorded the bladder involvement in 33.7% cases and in 32.33% cases there was infiltration of bladder mucosa.

Incidence of bladder involvement increases with clinical staging. Attempts have been made to findout the relationship between age group and cystoscopic findings, irrespective of clinical staging. Higher incidence of bladder involvement was found in third decade of life. The lowest rate of infiltration of bladder mucosa was seen in seventh decade of life. Thus one can conclude, that in early years of life,the invasiveness of malignancy is more compared to that in the later years of life (Herban Singh).

According to Vincent Conor VVF occurs mostly following extensive hysterectomy and more commonly with either removal of large fibrous tissue or in patients who have had preoperative irradiation for carcinoma of the cervix.

# MATERIALS AND METHODS

100 cases of carcinoma cervix were selected. 25 of them were in Stage I, 25 in Stage II, 25 in Stage III and 25 in Stage IV. They were staged clinically. Cystoscopy was performed on them. In all cases urinary tract infections were ruled out by urine analysis.

In this study, conventional cystoscope was used for the examination of the urinary bladder. It consists of metallic sheath with an incandescent bulb at the bladder end, right angled telescope was fitted inside the sheath. The sheath had provision for the inflow and outflow of water and for electrical connections.

Patient should be prepared and placed in the lithotomy position with the thighs flexed to 45° (cystoscopy position). After thorough cleaning of the genitalia and the neighbouring region with antiseptic solution, the patient was draped. 1% xylocaine jelly was injected into the urethra by means of syringe. Meanwhile fluid column was set in with normal saline. Cystoscope was introduced and the following things were looked for:

a. Routine estimation of residual urine
b. Bladder capacity
c. Mucosa of the bladder
d. The trigone
e. The state of ureteric orifices, the flow of urine.
f. Any distortion of the anatomy of the bladder
g. Bladder neck
h. Urethral mucosa.

All patients were given antibiotics after cystoscopy.

## OBSERVATION AND ANALYSIS

**Total Number of Cases Studied : 100**

**According to FIGO Staging No.of cases studied in each stage**

Stage I : 25

Stage II : 25

Stage III : 25

Stage IV : 25

**Age Incidence**

| Age in Years | Stage I | Stage II | Stage III | Stage IV | Percentage |
|---|---|---|---|---|---|
| 25-35 Yrs | 2 | - | 1 | | 3% |
| 36-45 Yrs. | 15 | 10 | 15 | | 40% |
| 46-55 Yrs. | 8 | 10 | 5 | 18 | 41% |
| 56-65 Yrs. | - | 5 | 4 | 7 | 16% |

Youngest patient was 26 years old (Stage I) and oldest patient was 60 years old (Stage III).incidence was found to be the highest in the age groups between 46&55 yrs.

**Socioeconomic Status**

69% of patients belonged to grade V socioeconomic status. 29% belonged to grade IV and only 2% belonged to grade III. So it is seen that carcinoma cervix is more common in the lower socioeconomic groups.

**Parity**

| Parity | Number | Percentage |
|---|---|---|
| Nulliparous | 10 | 10% |
| 1 Child | 16 | 16% |
| 2 Children | 16 | 16% |
| 3 Children | 25 | 25% |
| 4 Children | 17 | 17% |
| 5 Children | 12 | 12% |
| 6 and above | 4 | 4% |

Highest incidence was found in women with 3 children. Highest parity was found to be 6 and above.

**Symptomatology**

Commonest urinary complaints were dysuria, hematuria, incontinence.

| Symptoms | Number | Percentage |
|---|---|---|
| Nil | 46 | 46% |
| Dysuria | 40 | 40% |
| Hematuria | 4 | 4% |
| Incontinence | 1 | 1% |

46% of the patients had no symptoms at all. 40% had dysuria, 4 % had hematuria and only 1 percent had incontinence. Urine analysis was done for all patients irrespective of their symptoms.

**Urine Analysis revealed the following**

| Urine Analysis | Number | Percentage |
|---|---|---|
| Albumin | 15 | 15% |
| Puscells | 20 | 20% |
| RBC's | 5 | 5% |
| Culture Positive | 10 | 10% |
| Nil | 50 | 50% |

In 50% of the patients urine analysis revealed no significant findings. In 10% patients culture was found to be positive. Most of them had grown E.coli. A five day course of antibiotics was given to those patients in whom the culture was found to be positive before performing cystoscopy on them.

**Blood Urea Estimation**

| Blood Urea | Number | Percentage |
|---|---|---|
| 15-25 Mg% | 35 | 35% |
| 26-35 Mg% | 60 | 60% |
| 36-45 Mg% | 5 | 5% |

Blood urea levels were found to be normal in all the cases.

**CYSTOSCOPY WAS DONE IN ALL CASES AND THE FOLLOWING FINDINGS WERE SEEN**

| Findings | Stage I | Stage II | Stage III | Stage IV | Percentage |
|---|---|---|---|---|---|
| Normal | 24 | 18 | 12 | 12 | 66% |
| Congestion | 0 | 5 | 10 | 14 | 29% |
| Bladder capacity | | | | | |
| Normal | 25 | 25 | 23 | 12 | 95% |
| Reduced | - | - | 2 | 3 | 5% |
| External pressure | - | - | 4 | 6 | 10% |
| Elevation of Trigone | - | - | 4 | 8 | 12% |
| Bullous edema | - | - | 2 | 4 | 6% |
| Petechial haemorrhage | - | 2 | 1 | 2 | 5% |
| Bladder Infiltration | - | 2 | 4 | 8 | 14% |
| Trabeculations | 1 | 2 | - | - | 3% |
| Ulcer | - | - | - | 1 | 1% |
| Stenosis of urethra | - | - | - | 2 | 2% |
| Right ureteric orifices elevated | - | - | - | 1 | 1% |
| Left ureteric orifices not seen | - | - | - | 4 | 4% |
| Both ureteric orifices seen | 25 | 25 | 25 | 20 | 95% |
| Both not seen | - | - | - | 1 | 1% |

66% of patients had normal findings. Infiltration of growth into bladder was seen in 14% of patients of which 2 belonged to stage II, 4 belonged to Stage III and 8 to Stage IV. Though their clinical staging had been Stage II and Stage III it was surprising to see them being classified into Stage IV after cystoscopy which will alter the line of management in these cases. Therefore it is necessary to perform cystoscopy in any stage of carcinoma cervix. IVP was also performed in all these cases and showed bilateral hydronephrosis in 3 of stage III and 4 of Stage IV patients and 2 of stage II patients.

# DISCUSSION

This study has been undertaken to study the cystoscopic changes in different stages of carcinoma cervix and whether it plays a role in altering the line of management in any way.

10% of patients were nulliparous and the rest of them were married the highest parity being six and the highest incidence between age group 46-55 years.

46% of patients had nil urological symptoms 40% had dysuria 4% had hematuria and 1% incontinence. Urine culture was positive in 10% of patients. Blood urea levels were normal in all patients. Biopsy cervix was taken in all these cases. All showed evidence of infiltrating squamous cell carcinoma. IVP was done in all these cases which showed bilateral hydronephrosis in 3 of Stage III and 4 of Stage IV patients and 2 of stage II patients.

In 66% patients normal bladder was seen. Bladder congestion was seen in 29%, reduced bladder function in 5%, elevation of trigone in 12%, petechial haemorrhage in 5%, bladder infiltration in 14% ulcer 1%, bullous edema 6%, both ureteric orifices not seen in 1% of cases.

**COMPARISON OF CYSTOSCOPIC FINDINGS IN CARCINOMA CERVIX**

| | **Gemell and Todd** | **Government RSRM Hospital** |
|---|---|---|
| Normal | 22.66% | 66% |
| Infiltration | 28.33% | 14% |
| Congestion | 19.33% | 29% |
| External Pressure | 14.35% | 10% |
| Hematuria | 1% | 4% |
| Trabeculations | 2% | 3% |

The probable reduction in bladder infiltration at present must be due to early detection of cancer cervix by screening tests. The other findings are almost the same in both series.

# SUMMARY AND CONCLUSION

In carcinoma cervix, bladder infiltration was seen in 2 of stage II, 4 of Stage III, 18 of stage IV patients. Thus it has changed the clinical staging of all these patients and altered their line of management after cystoscopy was performed.

So it is empirical to do cystoscopy as one of the diagnostic procedures before planning the line of management in patients with carcinoma cervix whatever the stage may be.

## OTHER USES OF CYSTOSCOPY

- In ureteric injuries cystoscopy helps to find out the level of ureteric injury.
- Cystoscopy also helps to diagnose and remove foreign body from the bladder.
- In suspected cases of renal tuberculosis, it helps to take biopsy of bladder mucosa and also from any growth in the bladder.
- In fibroid uterus, ovarian tumour and prolapse uterus, the anatomy of the bladder is slightly altered, which can be viewed with the help of it.
- Cystoscopy helps to differentiate ureteric fistula from vesical fistula.

- Treatment for stress incontinence has become an endoscopic procedure where cystoscopy finds a definitive a place.

- Cystoscopy is an easy, effective method of evaluating the state of urinary tract in all gynaecological conditions.

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## PROFORMA

1. Name of the patient :

2. Age :

3. Parity :

4. Socioeconomic status :

5. Symptomatology

   Dysuria :

   Hematuria :

   Incontinence :

6. Clinical staging by pelvic &

   rectovaginal examination :

7. Blood urea levels :

8. Urine culture and Sensitivity :

9. Histopathologic findings :

10. Cystoscopic findings :

11. IVP Findings :

# MASTER CHARTS

| Sl.No | Name | IP No. | Age | Parity | Socio-economic Status | D ysuria | Hematuria | Incontinence | Clini Stag |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Maniammal | 11512 | 57 | 0 | V | + | - | - | IV |
| 2. | Mariammal | 11412 | 65 | 5 | V | + | - | - | III |
| 3. | Shobana | 11400 | 36 | 1 | IV | | | | II |
| 4. | Shanthi | 11211 | 55 | 2 | IV | + | | | IV |
| 5. | Varalakshmi | 10118 | 48 | 1 | V | - | - | - | IV |
| 6. | Subbulakshmi | 10006 | 48 | 5 | V | + | - | - | II |
| 7. | Sunitha | 11170 | 47 | 1 | V | - | - | - | IV |
| 8. | Velumani | 10040 | 37 | 5 | V | + | - | - | III |
| 9. | Veeramma | 10412 | 49 | 5 | IV | - | - | - | II |
| 10. | Vaniamma | 10850 | 41 | 1 | IV | + | - | - | I |
| 11. | Kuppummal | 10512 | 51 | 2 | V | - | - | - | II |
| 12. | Vanathi | 10129 | 42 | 0 | V | + | - | - | I |
| 13. | Ramayi | 11531 | 42 | 1 | V | - | - | - | I |
| 14. | Kumutha | 11260 | 51 | 0 | V | - | - | - | II |
| 15. | Rani | 11851 | 54 | 2 | V | + | - | - | II |
| 16. | Muthulakshmi | 11151 | 42 | 3 | V | + | - | - | III |
| 17. | Rajalakshmi | 11231 | 50 | 0 | V | - | - | - | II |
| 18. | Rathinammal | 11660 | 51 | 1 | V | - | + | + | IV |

| Sl.No | Name | IP No. | Age | Parity | Socio-economic Status | D ysuria | Hematuria | Incontinence | Clini Stag |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 19. | Rakayi | 11812 | 48 | 2 | V | - | - | - | II |
| 20. | Ruthumari | 11121 | 41 | 3 | IV | + | - | - | III |
| 21. | Vanitha | 11911 | 46 | 1 | V | + | - | - | I |
| 22. | Muthumari | 11101 | 43 | 4 | V | + | - | - | I |
| 23. | Karupazhi | 11401 | 48 | 5 | V | - | - | - | I |
| 24. | Kanjana Mala | 11200 | 56 | 1 | V | + | - | - | II |
| 25. | Menaka | 11212 | 62 | 2 | V | - | - | - | IV |
| 26. | Kaniamma | 11315 | 61 | 1 | V | + | - | - | III |
| 27. | Mangamma | 11516 | 64 | 0 | III | - | - | - | II |
| 28. | Visalakshi | 12051 | 54 | 3 | V | + | - | - | I |
| 29. | Kuttiamma | 11251 | 65 | 1 | V | - | - | - | IV |
| 30. | Indumathi | 11386 | 62 | 0 | IV | + | - | - | IV |
| 31. | Vidya | 11512 | 60 | 3 | V | - | - | - | II |
| 32. | Shanthi | 13106 | 58 | 2 | V | - | - | - | IV |
| 33. | Karpagam | 11016 | 59 | 1 | V | + | - | - | II |
| 34. | Munammal | 11617 | 60 | 2 | V | - | - | - | IV |
| 35. | Thangam | 12187 | 61 | 1 | V | - | - | - | IV |
| 36. | Chockammal | 14268 | 56 | 5 | V | - | - | - | II |
| 37. | Mary | 15261 | 36 | 4 | V | + | - | - | III |
| 38. | Pounmmal | 18451 | 42 | 1 | V | - | - | - | IV |
| 39. | Mumtaj | 10212 | 45 | 5 | V | + | - | - | III |
| 40. | Selvi | 11426 | 48 | 5 | V | - | - | - | IV |
| 41. | Noor Nisha | 12214 | 39 | 1 | IV | - | - | - | I |
| 42. | Ponni | 14168 | 42 | 3 | IV | + | - | - | III |
| 43. | Lurdh Mari | 15175 | 49 | 4 | V | - | - | - | IV |
| 44. | Kalaiselvi | 16148 | 40 | 1 | IV | + | - | - | III |
| 45. | Poovarasi | 17135 | 40 | 5 | IV | - | - | - | I |
| 46. | Vadivambal | 18212 | 38 | 3 | V | - | - | - | III |
| 47. | Balammal | 11013 | 42 | 5 | V | + | - | - | III |

| Sl.No | Name | IP No. | Age | Parity | Socio-economic Status | D ysuria | Hematuria | Incontinence | Clini Stag |
|---|---|---|---|---|---|---|---|---|---|
| 48, | Nagabooshanam | 11118 | 51 | 5 | V | + | - | - | IV |
| 49. | Muthulakshmi | 12224 | 41 | 4 | V | - | - | - | III |
| 50. | Zaithanbee | 11218 | 38 | 3 | V | + | - | - | III |
| 51. | Dhanalakshmi | 6271 | 48 | 4 | IV | - | - | - | III |
| 52. | Fathima | 6721 | 48 | 2 | IV | - | - | - | IV |
| 53. | Mariammal | 6817 | 41 | 1 | IV | - | - | - | II |
| 54. | Muthulakshmi | 7178 | 26 | 3 | V | - | - | - | I |
| 55 | Thamarai | 7418 | 44 | 4 | V | - | - | - | II |
| 56 | Faridha | 7824 | 36 | 1 | IV | - | - | - | I |
| 57. | Amudha | 8117 | 288 | 2 | V | - | - | - | III |
| 58. | Amsaveni | 8281 | 58 | 6 | IV | - | - | - | IV |
| 59. | Kamarunisha | 8421 | 46 | 3 | IV | - | - | - | I |
| 60. | Muthumanickam | 8818 | 48 | 1 | V | - | - | - | IV |
| 61. | Bommi | 8902 | 37 | 4 | IV | - | - | - | I |
| 62. | Udayakumari | 9128 | 41 | 4 | IV | - | - | - | II |
| 63. | Kulandiammal | 9234 | 50 | 6 | V | - | - | - | IV |
| 64. | Jansi Rani | 9561 | 31 | 3 | IV | - | - | - | I |
| 65 | Mani Magalai | 9784 | 44 | 3 | IV | - | - | - | III |
| 66. | Poonmani | 9826 | 38 | 4 | V | - | - | - | I |
| 67. | Pelomina Mary | 9917 | 51 | 6 | V | - | - | - | IV |
| 68. | Usha | 10113 | 50 | 3 | V | - | - | - | II |
| 69. | Uthami | 10124 | 42 | 2 | IV | + | - | - | III |
| 70. | Pichiammal | 10248 | 46 | 4 | IV | - | - | - | I |
| 71. | Eswari | 10312 | 47 | 5 | V | + | - | - | II |
| 72. | Faridha Banu | 10476 | 47 | 2 | IV | - | - | - | I |
| 73. | Uma Maheswari | 10521 | 48 | 4 | V | + | - | - | II |
| 74. | Ponmani | 10678 | 55 | 6 | V | - | - | - | I |
| 75. | Nagammal | 10771 | 53 | 3 | V | - | - | - | I |

| Sl.No | Name | IP No. | Age | Parity | Socio-economic Status | D ysuria | Hematuria | Incontinence | Clini Stag |
|---|---|---|---|---|---|---|---|---|---|
| 76. | Mariammal | 10784 | 49 | 2 | IV | - | - | - | II |
| 77. | Muthumary | 10896 | 51 | 4 | V | - | - | - | I |
| 78. | Ambujam | 3123 | 47 | 1 | V | - | + | - | IV |
| 79. | Angammal | 3707 | 42 | 2 | V | + | - | - | III |
| 80. | Alamelu | 3520 | 40 | 0 | V | - | - | - | I |
| 81. | Sarasvathi | 3817 | 45 | 3 | IV | + | - | - | II |
| 82. | Fathima | 4046 | 50 | 1 | V | - | - | - | III |
| 83. | Either Rani | 4152 | 43 | 2 | V | + | - | - | II |
| 84. | Seenemmal | 4464 | 40 | 0 | V | - | - | - | I |
| 85. | Singari | 4574 | 48 | 2 | V | + | + | - | IV |
| 86. | Vulfath Nisha | 4834 | 46 | 1 | V | - | + | - | IV |
| 87. | Mangayarkarasi | 5178 | 41 | 3 | V | + | - | - | II |
| 88. | Mary | 6284 | 49 | 4 | V | - | - | - | III |
| 89. | Dhanabagyam | 6817 | 42 | 4 | V | + | - | - | II |
| 90. | Felomma | 6017 | 41 | 1 | IV | - | - | - | I |
| 91. | Selvi | 1026 | 56 | 3 | IV | + | - | - | III |
| 92 | Mariammal | 1164 | 61 | 0 | IV | + | - | - | III |
| 93 | Kutti | 1207 | 46 | 1 | V | - | - | - | IV |

| Sl.No | Name | IP No. | Age | Parity | Socio-economic Status | D ysuria | Hematuria | Incontinence | Clini Stag |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 94. | Shenbagam | 1284 | 36 | 3 | V | - | - | - | II |
| 95 | Kuttiammal | 1432 | 41 | 1 | V | + | - | - | I |
| 96 | Kuladaiammal | 1521 | 55 | 2 | V | - | - | - | II |
| 97 | Kalavathi | 1766 | 36 | 1 | V | + | - | - | II |
| 98 | Kuppammal | 2123 | 46 | 0 | III | - | - | - | IV |
| 99 | Aarukani | 2724 | 65 | 4 | V | + | - | - | II |
| 100. | Maheswari | 3026 | 38 | 4 | V | + | - | - | II |