Results

The eighty one patients included in this study were classified into two groups. The ureterosigmoidostomy group and sigma rectum pouch group .

The patients group of ureterosigmoidostomy included forty two patients.

The age ranged from 41y to 74y with mean age 57.17 y . With standered deviation 8.009 Among this group there were four females .Tab (1) illustrate the age and sex distribution .

Tab (1)

Sex / Age	Male		Female		Total	
	No	%	No	%		
40 : 50	9	21.4 %	0	0 %	9	21.4 %
51 : 60	20	47.6 %	2	4.8 %	22	52.4 %
61 : 70	5	11.9 %	2	4.8 %	7	16.7 %
Above 70	4	9.5 %	0	0 %	4	9.5 %
Total	**38**	**90.4 %**	**4**	**9.6 %**	**42**	**100%**

Twenty two patients are in age group 51 : 60 y .(52.4 %) and 11 patients above 60 y .(26.3 %) . This age group has less fitness for more complicated methods of diversion .

The group of patients for sigma rectum pouch were 39 patients, 31 were males and 8 patients were females . Age ranged from 43 : 70 years tab (2) .

Tab (2)

Sex / Age	Males		Females		Total	
	No	%	No	%	No	%
40 : 50	15	38.5	1	2.5	16	41
51 : 60	12	30.8	4	10.2	16	41
61 : 70	4	10.2	3	7.8	7	18
Total	31	79.5	8	20.5	39	100

The mean age for sigma rectum pouch group was 53 , 85 with stander deviation $\pm$ 7.38 .

In female group the mean age was 58.5 y . and in males group the mean age was 52.6y.

Diagram (1) represent the age distribution .

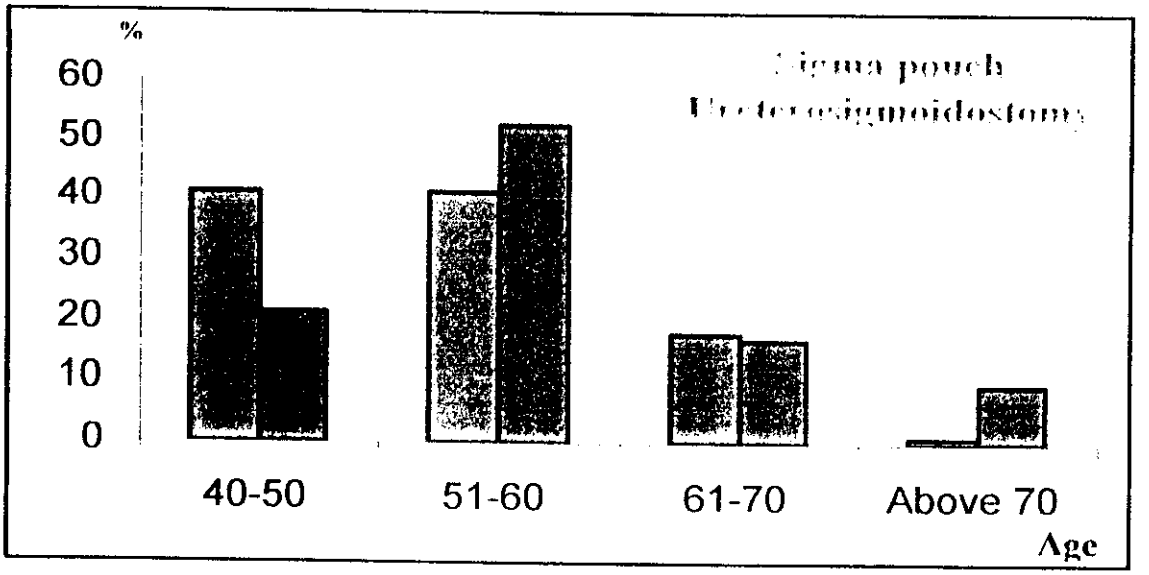
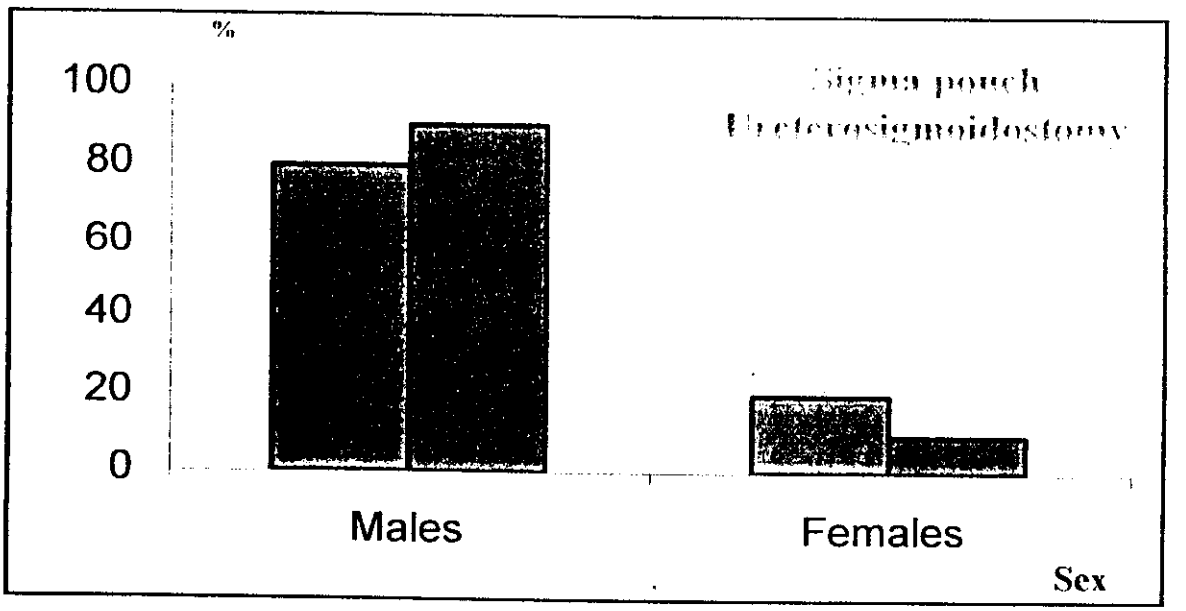


Diagram (2) represent the sex distribution .



The clinical stage of the ureterosigmoidostomy group illustrated in tab. 3.

Tab (3)

Stage	No	%
T_1	1	2.4 %
T_2	18	42.9 %
T_3	21	50 %
T_4	2	4.7 %
Total	**42**	**100 %**

The patient candidate for ureterosigmoidostomy with T_1 stage presented with history of multiple operations on both ureters and right kidney , the general fitness and difficult cystectomy require rapid ureteric continent diversion type so ureterosigmoidostomy was performed .

Two cases of T_4 stage as regard postoperative assessement where the procedure is done as a palliative form of diversion due to lower ureteric obstruction by tumour invasion and benign prostatic hyperplasia in 68 years old man and in the second case the ischemic heart disease require the simplest form of diversion .

Ninty two percent of the patients were in T_2 and T_3 stages .

The clinical stage of bladder carcinoma in patients of sigma rectum pouch group . tab.

Tab (4)

Stage	No	%
T_1	2	5.1 %
T_2	26	66.7 %
T_3	11	28.2 %
Total	**39**	**100 % %**

The main group was in stage two (66.7 %)

The histopathological features of the uretero sigmoidostomy group illustrated in tab (5)

Tab (5)

Type	No	%
Squamous cell carcinoma	21	50 %
Transitional cell carcinoma	18	42.9 %
Adeno carcinoma	2	4.7 %
Mixed tumour	1	2.4 %
Total	**42**	**100 %**

Twenty one Patients were of squamous cell type while 18 patients were of transitional cell type . Two cases of adeno carcinoma and one case, female, has both transitional and sqaumous areas of carcinoma .

The histopathological features of the carcinoma of sigma rectum pouch group in tab(6).

Tab(6)

Sex / Type	Males		Females		Total	
	L	H	L	H	No	%
Squmous cell C.	12	4	2	2	20	51.3
Transitional Cell C	6	5	2	1	14	35.8
Adenocarcinoma	-	1	-	-	1	2.6
Mixed tumour	3	-	1	-	4	10.3
Total	21	10	5	3	39	100%

L : Low grade H : High grade

Squamous cell carcinoma represented 51.3 % of the sigma rectum pouch group , transitional cell carcinoma formed 35.8 % of the group. Only single male of high grade of adenocarcinoma. The mixed type tumour was the type of histopathology were both squmous and transitional types were found.

The clinical stage and the histopathological features and their cross relation illustrated in tab (7) for ureterosigmoidostomy group.

Tab (7)

Stage / Path	T1		T2		T3		T4		Total	
	No	%	No	%	No	%	No	%	No	%
Squmous cell C	1	2.4	7	16.7	13	30.9			21	50
Transitional cell C			10	23.8	6	14.3	2	2.4	18	42.8
Adeno carcinoma					2	4.8			2	4.8
Mixed tumour			1	2.4					1	2.4
Total	**1**	**2.4**	**18**	**42.9**	**21**	**50**	**2**	**2.4**	**42**	**100**

As regard age, sex, tumour stage and tumour pathology there is no statistical correlation between each of them in the same group or in between the two groups.

In Tab (8) the clinical stage and the histopathological features of the tumour are illustrated for sigma pouch group.

Tab(8)

Stage / Type	T1		T2		T3		Total
	♂	♀	♂	♀	♂	♀	
Squmous cell C.	-	-	15	2	1	2	**20**
Transitional Cell C	1	1	5	-	5	2	**14**
Adeno carcinoma	-	-	1	-	-	-	**1**
Mixed tumour	-	-	2	1	1	-	**4**
Total	1	1	23	3	7	4	**39**
Total	**2**		**26**		**11**		**39**

There are two patients in T_1 stage , one of them was 69 years old man with poor differentiated transitional cell carcinoma . The second was female 58 years old with recurrent superficial transitional cell carcinoma after transurethral resection and BGG instillation, the recurrent mass was multiple and related to the trigone . T_2 group is the main group, 26 patients 66.7 % and 65.4% of this group, are of squamous cell type.

T_3 group consists of 11 patients 28.2 % , four of them were females and 63.6 % of this group were transitional cell type .

Diagram (3) illustrate distribution of tumour stage.

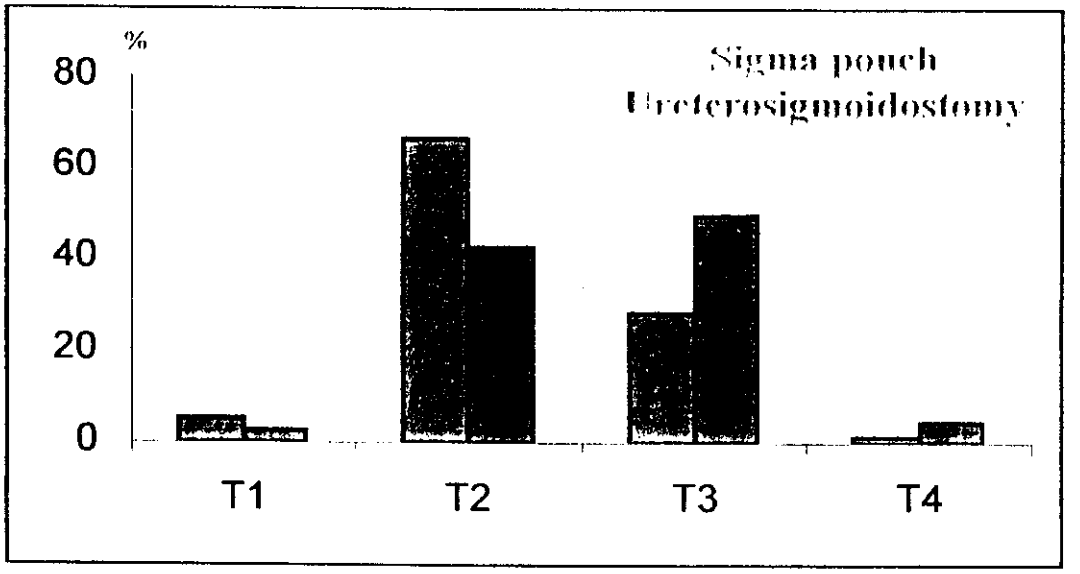
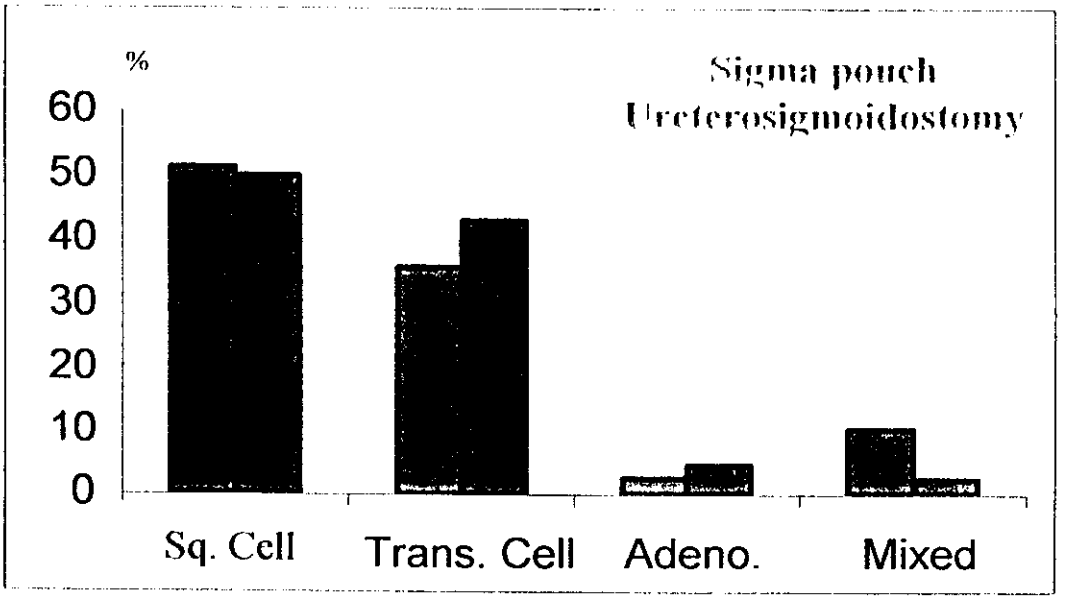


Diagram (4) illustrate distribution of tumour histopathology.



Urological and Non urological diseases associated with ureterosigmoidostomy group of patients tab (9)

Tab (9)

Item	No	%
Non Urological diseases		
- Hypertension	15	35.7
- Diabetes	6	14.3
- Ischemic heart dis	1	2.4
Urological lesions		
- Hydronephrosis	5	11.9
- Urinary stones	6	14.3
Kidney	3	
Ureter	3	
- B . P . H	12	31.8

Diabetes and hypertension were the most common diseases seen, 14.3 % of the patient were diabetic while 35.7 % were hypertensive .

Benign prostatic hyperplasia with lower urinary obstructive symptoms was the presenting symptoms in some patients, In 38 male patients prostatic hyperplasia formed 31.8% of their urological diseases .

Hydronephrosis in 5 patients , 11.9 % were reported, two of them were bilateral hydronephrosis of mild degree .

Renal stones in three patients and ureteric stones in another three patients were reported .

The associated urogenital pathology in sigma pouch group in tab (10)

Tab (10)

Pathology	No	%
Hydronephrosis	12	30.8
Urinary stones	3	7.7
- Renal	1	
- Ureteric	2	
B.P.H	6	15.4
Non functioning K.	1	2.6

Twelve Patients with hydronephrosis due to lower ureteric obstruction by ureteric stone, stricture or tumour obstruction, three of them, the condition were bilateral. So 15 renal units were hydronephrotic.

Single patient 44 years old with pelvic right renal stone which have been operated upon in other operative session.

Single patient with non functioning left kidney, both nephrectomy and cystectomy have been done in the same operative session due to infected secretion of the kidney by a single extended wound incision.

Prostatic hyperplasia was reported in six patients, it was the presenting symptom in four patients and tumour discoved by radiological and preoperative diagnostic cystoscope .

Postoperative major early complications in uretero sigmoidostomy group .

Tab (11) illustrate the early complications reported in the hospital stay or within the first 3 months of follow up .

Tab (11)

Item	No	%
Mortality	2	4.8
Urinary leakage	7	16.7
Uretero colic obstruction	4	9.5
Uretero colic reflux	2	4.8
Acute pyelonephritis	5	11.9
Wound infection	8	19.0
- Superficial	5	11.9
- Deep	3	7.1
Prolonged ileus $\geq$ 7 days	9	21.4
Pneumonia	1	2.4
Deep venous thrombosis	1	2.4

Two patients died in early post operative follow up, the first developed sever pneumonia. The second was a female who died of septicaemia .

In seven cases of urinary leakage reintroduction of rectal tube, diltalion of the anus and long term antibiotic , with parentral fluids improved the condition .

Patients developed obstruction at the ureterocolic anastomosis site , three of them treated by antigrade balloon diltation and only one patient need reoperation .

Two cases of refluxing uretercolic anastomosis were reported .

Acute pyelonephritis developed in five patients due to obstruction, reflux or obstructed stents .

Wound infection was controlled by pre and post operative antibiotics but three cases develop deep pelvic infection, one patient died and the other two improved by conservative treatment however one of them required reinsertion of a pelvic drainage tube .

One patient developed pneumonia and did not respond to treatment .

Postoperative early major complications in sigma rectum pouch group tab (12)

Tab (12)

Item	No		Total	%
	U shaped pouch	N shaped pouch		
Mortality	1	1	2	5.1
Urinary leakage	3	1	4	10.3
Fecal leakage	1	1	2	5.1
Ureteric obst.	1	-	1	2.6
Reflux	-	-	-	-
Wound infection	3	4	7	17.9
Acute pyelonephritis	2	-	2	5.1

• More than one complication occur in the same patient .

One patient died early post operatively due to irreversible hypotensive shock . The second died due to urinary and fecal leak and not improved by conservative treatment and she died by septic shock.

Four patients suffered from prolonged urine leakage and improved by conservative treatment, only one patient needed percutaneous nephrostomy on left side for diversion and improved after antegrade double J fixation.

Two patients developed fecal fistula and were managed conservatively, one died and one passed this distressful complication .

Wound infection was a great problem, many lines of prophylactic antibiotics have been utilized but still seven patients developed wound infection . All of them were superficial infection and need prolonged antibiotics therapy. Secondary sutures were needed in two of them.

No cases of ureteric reflux have been reported. One case of ureterocolic obstruction was reported and treated by retrograde double J fixation .

Acute pyelonephritis developed in two patients and treated conservatively.

Prolonged ileus developed in four patients, anuria in two patients due to obstructed stents , diagnosed early and treated by deplugging of the catheters.

In tab (13) there is no significant difference between the U shaped pouch and double folded N shaped pouch, but the incidence of urinary leak is less in N pouch than in U pouch configuration this is most probably due to the type of ureteric anastomosis by long extramural serous tunnel .

The early complications postoperatively in the two groups shown in tab (13) .

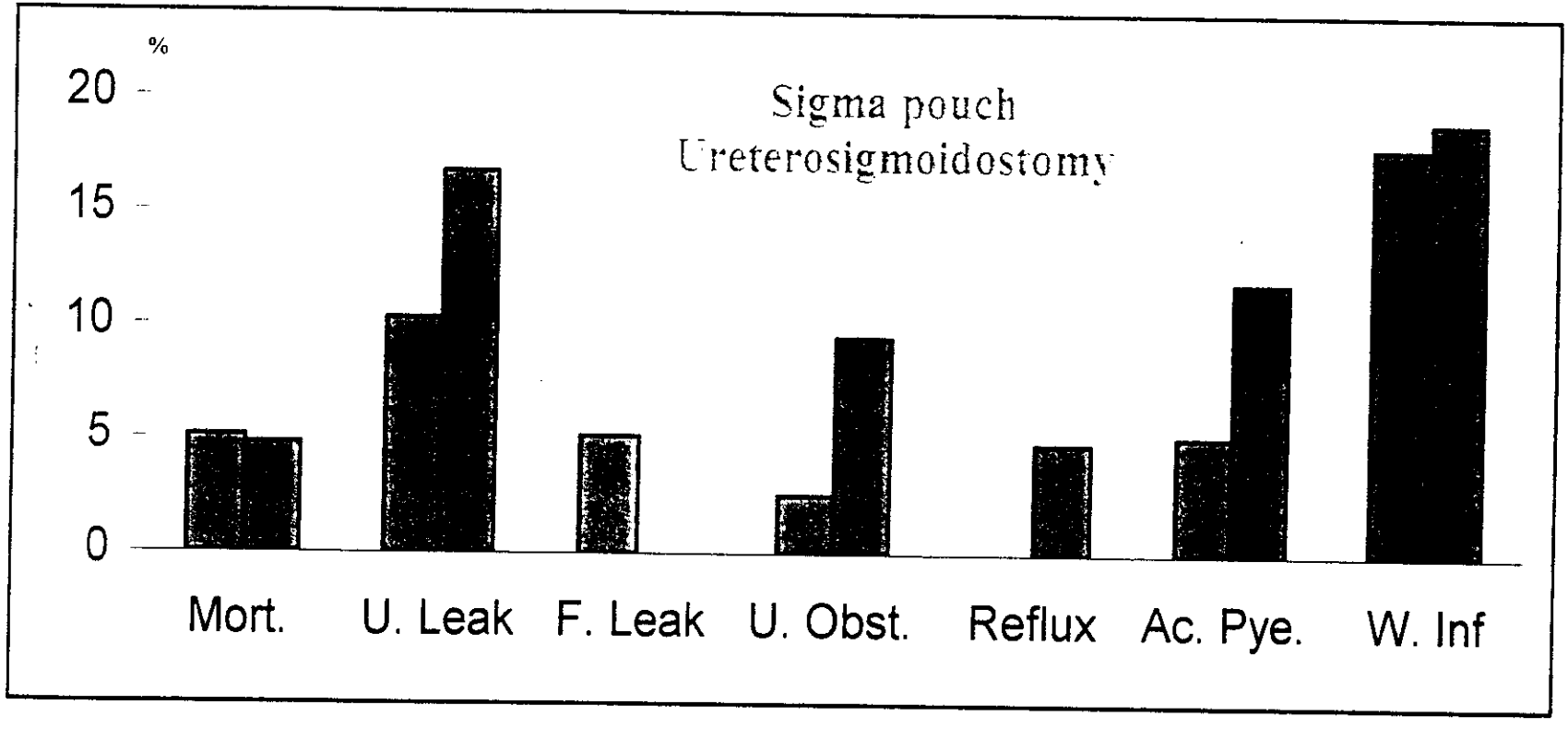
Tab (13)

Item	Ureterosig		Sigma pouch	
	N	%	N	%
Mortality	2	4.8	2	5.1
Urinary leakage	7	16.7	4	10.3
Fecal leakage	-	-	2	5.1
Ureteric obst.	4	9.5	1	2.6
Reflux	2	4.8	-	-
Acute pyelon.	5	11.9	2	5.1
Wound infection.	8	19.	7	17.9

There is a differences in the percentage between the two groups among urinary leak, ureterocolic obstruction, reflux and development of pyelonephritis . The improved percentage is among sigma pouch group but this difference is not reported in conditions of mortality and wound infection.

Statistically there is no significant difference among the two groups. X_2 is insignificant at all items at $P = 0.05$.

Diagram (5) The early complications .



Post operative follow up of the patients group of uretero sigmoidostomy at three months follow up duration .

Tab (14)

	No	%
Evaluated	40	95.2
Non evaluated	2	4.8
Total	**42**	**100 %**

As two patients died early post operative , 40 patients were available for follow up .

Post operative follow up of sigma rectum pouch group – 3 months duration tab .

Tab (15)

	No	%
Evaluated	35	89.7 %
Non evaluated	4	10.3 %
Total	**39**	**100 %**

Four patients were unavailable for evaluation after three months duration . Two patients died early post operative . Two patients were lost early.

Late complications reported in 40 patients of ureterosigmoidostomy group, 12 months postoperatively illustrated in tab (16) .

Tab (16)

item	No	%
Mortality	9	22.5
Hydronephrosis	7	17.5
Chronic pyelonephritis	7	17.5
Reflux	2	5
Uretero colic obstruction	5	12.5
Metabolic acidosis	8	20
Renal function deterioration	4	10
Urinary calculi	1	2.5
Hernia	1	2.5
Deep venous thrombosis	1	2.5

Nine patients died at the first year follow up , six patients due to tumour recurrence and two patients due to renal failure and one patient died by liver cell failure .

Hydronephrosis reported in seven patients . Reflux have been demonstrated in two patients, it was bilateral in one case . Ureterocolic stenosis required reoparetion in two patients and antigrade ballon diltation in three patients .

Chronic pyelonephritic changes on the radiographic examination were reported . In seven patients asymptomatic hydronephrosis were reported .

Renal function deterioration in four patients , one patient, the reflux was bilateral and later died in renal failure . One patient died due to recurrent attacks of pyelonephritis . The other two patients were responded to conservative treatment .

A case of right renal culculi developed post operatively and treated by percutancous nephrostomy removal.The inscional hernia in single old patient needed abdominal support and the deep venous thrombosis case was treated conservatively .

Hypermetabolic acidosis was found in 20 % of patients, hypokalaemia was found in three patients . Sodium bicarbonate and potassium elixir were supplied for compansation of metabolic acidosis and for hypokalemia .

Late complications reported in 35 evaluated patients of sigma pouch group at 12 month duration . Tab (17)

Tab (17)

Item	No		Total	
	U pouch	N pouch	No	%
- Mortality	2	2	4	11.4
- ureteral stricture	2	1	3	8.6
- ureteral reflux	1	-	1	2.8
- Renal function deterioration	1	1	2	5.7
- Problems in urinary control	1	-		2.8
- pyelonephritis	2	2	4	11.4
- tumour recurrence	1	2	3	8.6
- calculi	-	-	-	-
- colonic neoplasm	-	-		-

* More than one complication occur in the same patients .

Four patients died within the first year of follow up , three patients due to local tumour recurrence , one patient due to renal failure as recurrent pyelonephritis episodes and old age with prolonged early postoperative leakage were responsible factors.

Ureteral stricture was observed in three patients , 4 renal units , as one patient had bilateral stricture . In other two patients single ureteric stricture have been managed by antigrade balloon diltation .

Reflux was reported in single renal unit in single patient.

Two patients have developed renal function deterioration . Four patients developed pyelonephritic changes on radiological examination .

Local tumour recurrence occurred in three patients have been developed due to high grade transitional cell carcinoma .

One patient represented with difficulty in urinary control , due to old age and weak anal tone .

No cases of renal calculi or colonic neoplasm have been reported most probably due to short period of follow up .

No cases of hyperchloreamic acidosis have been reported as all patients are instructed to receive alkalizing drugs .

Late complications in the two groups illustrated in tab (18)

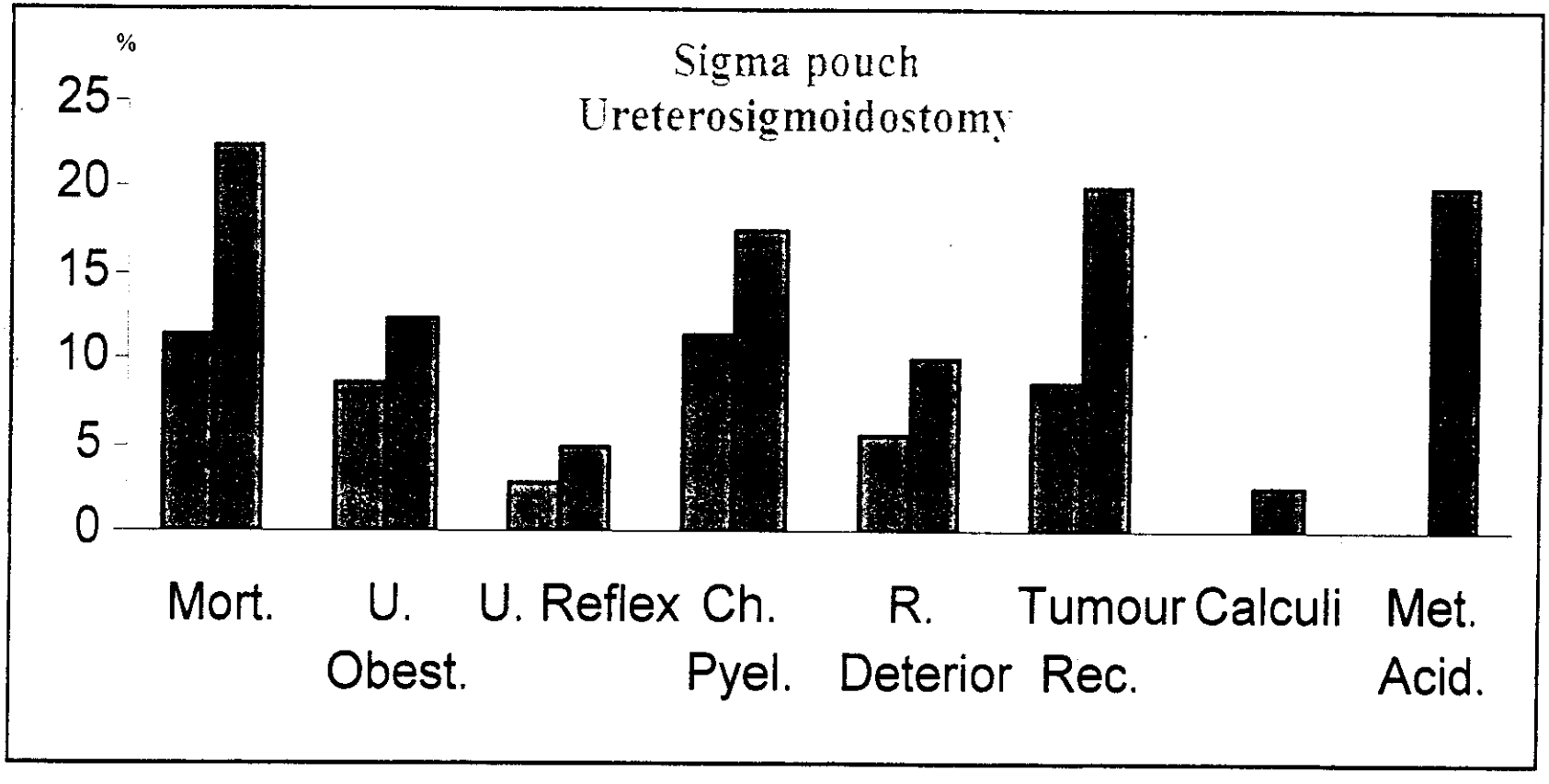
Tab (18)

Item	Ureterosigm.		Sigma pouch	
	N	%	N	%
Mortality	9	22.5	4	11.4
Ureterocolic obstruction	5	12.5	3	8.6
Uretercolic reflux	2	5	1	2.8
Chronic pyelonepheritis	7	17.5	4	11.4
Renal function deterioration	4	10	2	5.7
Tumour recurrence	6	15	3	8.6
Calculi	1	2.5	-	-
Metabolic acidosis	8	20	-	-

The improvement in the percentage among sigma pouch group is observed rather than ureterosigmoidostomy group. The improvement was reported in ureterocolic obstruction and reflux. The incidence of chronic pyelonephritis and renal function deterioration were also improved . The difference in mortality rate was due to higher age group and higher tumour stage in ureterosigmoidostomy group. Statistically no significant difference can be reported in all items .

Diagram illustrate comparative relation between the two groups as regard late complications

Diagram (6) The Late complications



Early and late mortality causes in 40 patients of uretero sigmoidostomy group .

Tab (19)

Cause	No
Early	
- Pneumonia	1
- Deep infection and septic shock	1
Late	
- Renal failure	2
- Tumour recurrece	6
- Liver cell failure	1

Eleven patients, 26.2 %, was the rate of mortality at the end of 12 months of follow up, 6 patients, 14.3 % due to tumour recurrence.

Early and late mortality causes in sigma rectum pouch group tab (20) .

Two patients 5.1 % died in the early postoperative period . Six patients of 35 follow up patients 16.2 % died in the first year of follow up . Tumour recurrence the main cause, 50 % of mortality causes .

Tab (20)

Cause	No
A . Early	
- irreversible shock	1
- Septic shock	1
B . Late	
- Tumour recurrence	3
- Renal failure	1
Total	**6**

Postoperative radiological reno-ureteral pattern recorded in 40 patients–80 renal units of ureterosigmoidostomy group.

Tab (21)

Renal unit	No	%	X^2
Stabilized and /or improved	59	73.75	
Deteriorated	21	26.25	18.05**
Total	80	100 %	

** highly significant

Eighty renal units have been evaluated from 3 – 12 months. Mean 11.1 month . 21 renal units, 26.25 % have dominestrate picture of renal function deterioration, among the deteriorated units 8.75 % due to ascending infection and development of chronic pyelonephritis . 13.75% due to obstructing factor at the uretero colic anastomotic site . Three units , 3 .75 % due to reflux .

Fifty nine renal units – 73.75 % showed stabilized pattern of excretion and concentration of the radioopaque dye .

The statistical analysis revealed that significant increas in stabilized renal units 73.25% in comparsion to deteriorated renal units 26.25% .

Postoperative radiological renoureteral pattern recorded in 35 patients – 69 renal units in sigma pouch group .

Sixty nine renal units in 35 patients have been evaluated, 9 units 13 % have demonstrated picture of hydronephrosis, 5 units 7.2 % of them demonstrated the picture of renal function deterioration in the form of delayed function of excretory power, delay power of dye evacuation due to stasis of dye and pyelonephritic radiological changes . The ureterocolonic stenosis , recurrent pyelonephritis and ureterocolic reflux were the causes of renal unit function deterioration .

Tab (22)

Renal unit	No	%	X^2
Stabilized and /or improved	60	87 %	
Deterioration	9	13 %	37.70**
Total	**69**	**100 %**	

** Highly Significant

Sixty renal units (87 %) show stabilized or even improved pattern of excretion , concentration and distribution of dye on the intravenous urograms .

Among the hydronephrotic units , no symptoms were reported .

In the five deteriorated renal units four of them implanted by submucosal tunnel technique and one by extramural serous lined tunnel technique .

Statistically no significant variation between U shaped pouch technique and double folded pouch technique as regard mortality and late complications . But significant improvement of 15 preoperative hydrophrotic units have been demonstrated as all of them were anastomed by extra mural serous lined tunnel technique .

Analysis of the result by chi square revealed significant difference in stabilized units (87%) rather than deteriorated units 13% .

Renal unit stabilization and deterioration in the two evaluated groups are illustrated in tab (23)

Tab (23)

Renal unit	Ureterosigmoid.		Sigma pouch		X^2
	No	%	No	%	
Stabilized unit	59	73.75	60	86	41.21
Deteriorated	21	26.25	9	13	

**Highly significant $P < 0.05$

Improving in both incidence of renal unit stabilization and deterioration have been shown by using chi square test, in sigma pouch group rather than ureterosigmoidostomy group .

Daytime continence was reported in the ureterosigmoidostomy group in tab (24) . Five patients developed occasional daytime incontinence , Old age , diabetis and incorporation of patient to regular voiding were contributing factors in daytime incontinence .

Tab (24)

Daytime continence	No	%	X^2
Continent	35	87.5	
Incontinent	5	12.5	22.5**
Total	**40**	**100 %**	

** highly significant

All patients have been instructed to void every four hours at daytime .

By chi Square analysis, the results showed that there is high significant increase in the percentage of continent patients (87.5%) in comparison to incontinent patients (12.5%).

Nocturnal continence in ureterosigmoidostomy group

Tab (25)

Night continence	No	%	X^2
Continent	29	72.5	
Occasional enuretic	8	20	43.81**
Enuretic	3	7.5	

** highly significant

Night dryness was achieved in 29 patients with night voiding frequency 0 – 2 per night . Eight patients were occasionally enuretic and partially improved by 25 mg impairmine hydrochloride at bed time . Three patients were enuretic and not improved by medical treatment .

The analysis revealed high significant increase in continent patients 72.5 % rather than other two groups.

Daytime continence recorded in 35 patients evaluated with sigma pouch group .

All the patients have diurnal continence with mean voiding frequency 4 : 5 / day .

Tab(26)

Daytime continence	**No**	**%**
- Continence	35	100 %**
- incontinent	0	0 %

** highly significant variation

Nocturnal continence in sigma rectum pouch group.

Nocturnal continence have been achieved in 31 patients , (88.5 %) while occasional spotting or enuresis have been observed in four patients (11.5 %), three of them improved by 25 mg impiramine hydrochoride and by night evacuation of their colon once or twice . Old , diabetic , incooperative woman failed to control here enuresis .

Tab (27) illustrate the results

Tab (27)

Night continence	No	%	X^2
- Continent	31	88.5 %	
- Occasional enuretic	3	8.7 %	48.21**
- Enuretic	1	2.8 %	
Total	**35**	**100 %**	

** Highly significant difference

By chi square analysis (X^2) the results revealed high significant increase in the percentage of continent patients (88.5%) than others patients i.e occasionally enuretic and enuretic patients.

Continence is significantly improved among sigma pouch group rather than the ureterosigmoidostomy group at day time and night time as shown in tab (28) and tab (29) .

Tab (28)

Item	Ureterosigmoid		Sigma pouch		X^2
	No	%	No	%	
Continence	35	87.5	35	100	57.5**
Incontinence	5	12.5	0		

** Highly significant

Tab (29)

Night continence	Ureterosigmoid.		Sigma pouch		X^2
	No	%	No	%	
Continent	29	72.5	31	88.5	
Occasional enuretic	8	20	3	8.7	76.8**
Enuretic	3	7.5	1	2.8	

**** highly significant**

the statistical analysis revealed that significant improvement in renal function stabilization and in daytime and nighttime continence in sigma rectum pouch group rather than ureterosigmoidostomy group .

Pouchmetry was recorded in sigma rectum pouch group after 6 and 12 months post operatively tab (30).

Tab (30)

Item	Result	
	Range	Mean
- Capacity in cc	450: 900.0 cc	656.2
- pouch pressure in cm H2O	13.0 : 25.0 cc	20.04

Pouchmetry have been done at interval from 6 to 14 months with mean capacity 656.206 and stander deviation ± 120.90 . Pouch pressure in cm H2O, the mean was 20.038 cm H_2O with stander deviation . ± 3.02

There is no significant difference among U configuration pouch and N double folded pouch in pouch pressure or in pouch capacity , mean 636.67 cc and 677.14 cc receptively.

By utilizing "t" test in comparing U and N configuration pattern, the statistical results were insignificant as shown in tab (31) and tab (32) .

Tab (31)

Pouchmetry

Type	No	Mean	Std. Dev.	Std of error
U Shaped pouch	14	677.14	107.53	29.82
N shaped pouch	15	636.67	129.13	34.51
Total	29	656.21	120.90	22.85

T. = 089

Tab (32)

Pouch Pressure

Type	No	Mean	Std. Dev.	Std of error
U Shaped pouch	14	19.97	2.85	0.79
N shaped pouch	15	20.09	3.16	0.84
Total	**29**	**20.04**	**3.02**	**0.57**

T. = 0.09

T is insignificant in both tables .

The contraction pressure at rest were not significantly different from those during filling . The frequency of contractions increased with the filling volume , however no statistical significant was found .

Blood urea and serum creatinine in ureterosigmoidostimy group at 3 , 6 , 12 months follow up at tab (33) .

Tab (33)

	3 months	6 months	12 months
Bl. urea mg %			
Range	18 – 40	21 - 60	20 – 80
Mean	30.2903	34.4194	40.2258
Std Dev .	± 6.3045	9.4367	17.3757
S. creatinine			
Range	0.6 – 2.0	0.8 – 2.1	0.8 – 3.1
Mean	1.2194	1.3581	1.5935
Std Dev .	±.4167	. 4403	. 7447

By using " F " test between the results of blood urea at 3,6 and 12 months significant statistical difference have been reported between the three values at level 0.006 .

And by using LSD test for detection of the difference direction , the results revealed statistical difference very high at level 0.002 between 3 and 12 months values and at 0.06 between 6 and 12 months values .

This figures means that there is increase in the blood urea values according to prolonged time of evaluation tab(34) and tab(35) illustrate this results .

Blood urea f test at 3 , 6 and 12 months tab. (34).

Tab (34)

	Sum of squares	Df	Mean square	F	Sig
Between Groups	1544.602	2	772.301	5.379	.006
Within Groups	12921.355	90	143.571		
Total	14465.957	92			

LSD test for B blood urea at 3 , 6 and 12 months tab. (35) .

Tab (35)

(1) VAR00001	(J) VAR00001	Mean Difference (L-J)	Std. Error	Sig.	95% Confidence Inteval	
					Lower Bound	Upper Bound
1.00	2.00	-4.1290	3.043	.178	-10.1754	1.9173
	3.00	-9.9355*	3.043	.002	-15.9818	-3.8891
2.00	1.00	4.1290	3.043	.179	-1.9173	10.1754
	3.00	-5.8065	3.043	.060	-11.8528	.2399
3.00	1.00	9.9355*	3.043	.002	3.8891	15.9818
	2.00	5.8065	3.043	.060	-.2399	11.8528

* The mean difference is significant at the .05 level .

Evaluation of serum creatinine values at 3 , 6 and 12 months using "f" test and "LSD" test revealed significant statistical difference between the three values at 0.03 .

On LSD results highly statistical difference between values of 3 months and that of 12 months at .009. Table (36) and table (37) illustrate the results .

F test for serum creatinine values at 3 , 6 and 12 months .

Tab (36)

	Sum of squares	Df	Mean square	F	Sig
Between Groups	2.219	2	1.109	3.609	.031
Within Groups	27.663	90	.307		
Total	29.881	92			

LSD test for serum creatinine values at 3 , 6 and 12 months .

Tab (37)

(1) VAR00001	(J) VAR00001	Mean Difference (L-J)	Std. Error	Sig.	95% Confidence Inteval	
					Lower Bound	Upper Bound
1.00	2.00	-.1387	.141	.327	-.4185	.1411
	3.00	-.3742*	.141	.009	-.6540	-9.4433E-02
2.00	1.00	.1387	.141	.327	-.1411	.4185
	3.00	-.2355	.141	.098	-.5152	4.428E-02
3.00	1.00	.3742*	.141	.009	9.443E02	.6540
	2.00	.2355	.141	.098	-4.4276E-02	.5152

*The mean difference is significant at the .05 level .

The obtained statistical results revealed that higher values of blood urea and serum creatinine will be resulted at prolonged time of evaluation .

Serum electrolyte in ureterosigmoidostomy group.

Tab (38)

	Normal Value	Range	Mean	Std. Dev
Sodium	136-146 mmol/L	128-151	138.56	±36
Potassium	3.5-55 mmol/L	2.4-5.0	3.97	±0.3
Chloride	95-105 mmol/L	98-110	99.7	±4.1
Bicarbonate	22-32 mmol/L	18.2-27.2	20.8	±1.7

The electrolyte values fluctuate around the normal values. Abnormal values reported in conditions of acute pyelonephritis episodes.

Hypermetabolic acidosis reported in eight patients and hypokalaemia is reported in three patients, sodium bicarbonate and potassium elixir were supplied for treatment of abnormal metabolic conditions.

The obtained statistical results revealed that higher values of blood urea and serum creatinine will be resulted at prolonged time of evaluation .

Blood urea and serum creatinine in sigma rectum pouch group at 3 , 6 , 12 month follow up at tab (39)

Tab (39)

	3 month	6 month	12 month
B . urea mg %			
Range	20 – 70	22- 75	20 – 75
Mean	32.806	37.903	39.871
Std. Dev.	± 10.563	14.399	16.047
S. creatinine mg %			
Range	0.6 – 2.9	0.6 – 3.0	0.6 – 3.1
Mean	1.239	1.409	1.558
Std. Dev.	± .467	.5418	.5329

By using "F" test between the results of blood urea at 3 , 6 and 12 months duration , the statistical results get no significant difference .

By using LSD test " lest significant difference " between the results , significant difference have been reported between results at 3 months and results at 12 months at significance .048 . Tab (40) and tab (41) illustrate the statistical relation .

Blood urea at 3 , 6 , 12 months

Tab(40)

	Sum of squares	df	Mean square	F	Sig
Between Group	824.151	2	412.075	2.145	.123
Within Group	17293.032	90	192.145		
Total	18117.183	92			

LSD test between measures of blood urea at 3 , 6 , 12 month .

Tab (41)

(1)VAR00001	(J)VAR00001	Mean Difference (1-J)	Std. Error	Sig	95%Confidnce interval	
					Lower Bound	Upper Bound
1.0	2.00	-5.0968	3.521	.151	-12.0916	1.898
	3.00	-7.0645*	3.521	.048	-14.0593	-6.9718E-02
2.0	1.00	5.0968	3.521	.151	-1.8980	12.0916
	3.00	-1.9677	3.521	.578	-8.9625	5.0271
3.0	1.00	7.0645*	3.521	.048	6.972E-02	14.0593
	2.00	1.9677	3.521	.578	-5.0271	8.9625

*The mean difference is significant at the .05 level

Using of "F" test and "LSD" test for creatinine results , no significant difference have been illustrated as shown in tab (42)and tab(43) .

Serum creatinine at 3 , 6 and 12 months

Tab (42)

	Sum of squares	df	Mean square	F	Sig
Between Group	27.938	2	13.969	1.145	.240
Within Group	867.255	90	9.636		
Total	895.193	92			

LSD test between the results of serum creatinine at 3 , 6 , and 12 months

Tab (43)

(1)VAR00001	(J)VAR00001	Mean Difference (1-J)	Std. Error	Sig	95%Confidnce interval	
					Lower Bound	Upper Bound
2.0	2.00	-.1710	.788	.829	-1.7374	1.3955
	3.00	-1.2387	.788	.120	-2.8051	.3277
3.0	1.00	.1710	.788	.829	-1.3955	1.7374
	3.00	-1.0677	.788	.179	-2.6342	.4987
4.0	1.00	1.2387	.788	.120	-.3277	2.8051
	2.00	1.0677	.788	.179	-.4987	2.0342

There is no significant difference as regard renal function tests among sigma rectum pouch . Serum creatinine is the more accurate measure than blood urea .

Serum electrolyte in sigma rectum pouch group .

All patients were kept on prophylactic alkalization . Serum electrolyte and arterial blood bicarbonate are listed in tab . (44)

Tab (44)

	Normal value	Range	Mean	St Deviation
Sodium	136:146mmol/L	131:150	138.97	±3.7
Potassium	3.5:5.5mmol/L	2.7:5.1	4.16	±0.4
Chloride	95:105mmol/L	94:106	98.2	±3.7
Bicarbonate	22:32mmol/L	19.2:27.4	21.23	±1.9
PH	7.35:7.45mmol/L	7.29:7.48	7.34	±0.04

Alkali therapy was discontinued two week before determination of arterial blood bicarbonate .

Hypokalemia is reported in three patients at 6 month follow up and treated conservatively .The electrolyte values fluctuate around the normal values .

As all patients were kept on alkalizing agent , no case of hyper chloraemic acidosis have been developed .

Fig. 18 (Case 1)
Ureterosigmoidostomy
Pre. op. I V U

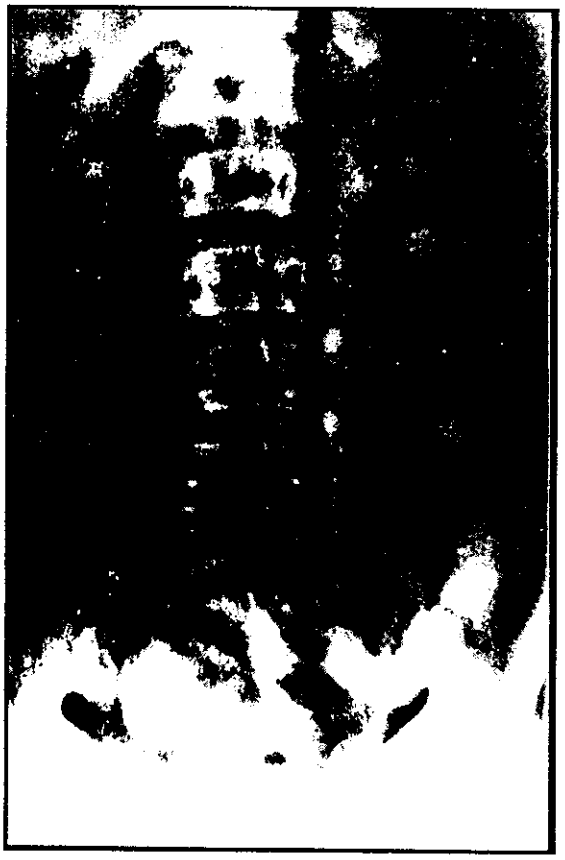


Fig. 19 (Case 1)
Ureterosigmoidostomy
Postop. I V U

Fig. 20 (Case 2)
Stone Left Kidney
Ureterosigmoidostomy
Postop. P.

Fig. 21 (Case 2)
Ureterosigmoidostomy
Postop. I V U

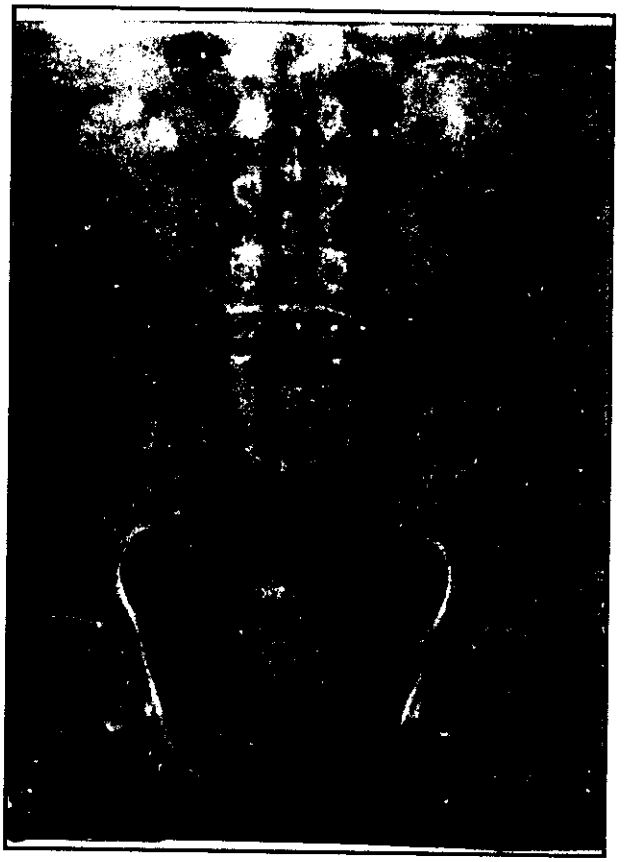


Fig. 22 (Case 3)
Ureterosigmoidostomy
Preop I V U

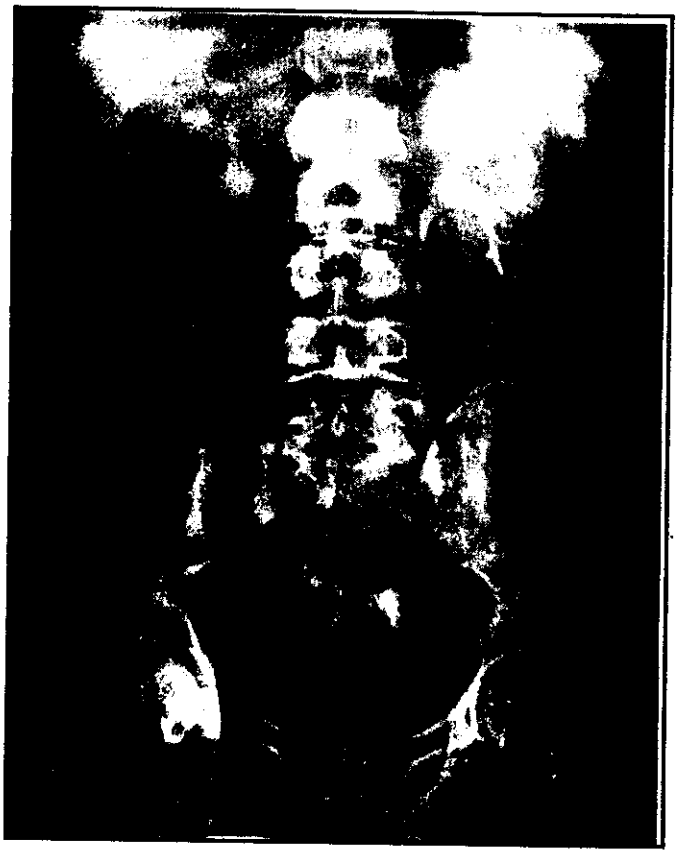


Fig. 23 (Case 3)
Ureterosigmoidostomy
Postop. I V U

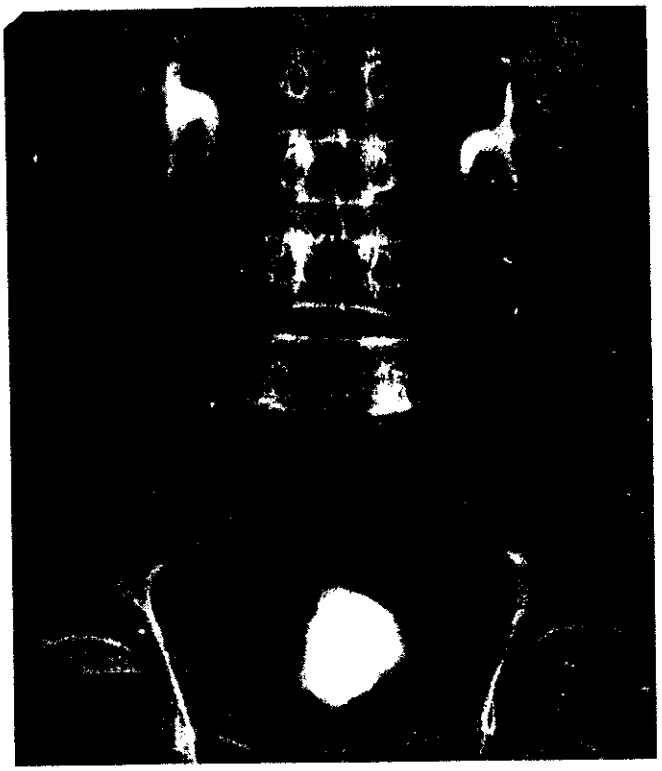


Fig. 24 (Case 1)
Preop. I V U

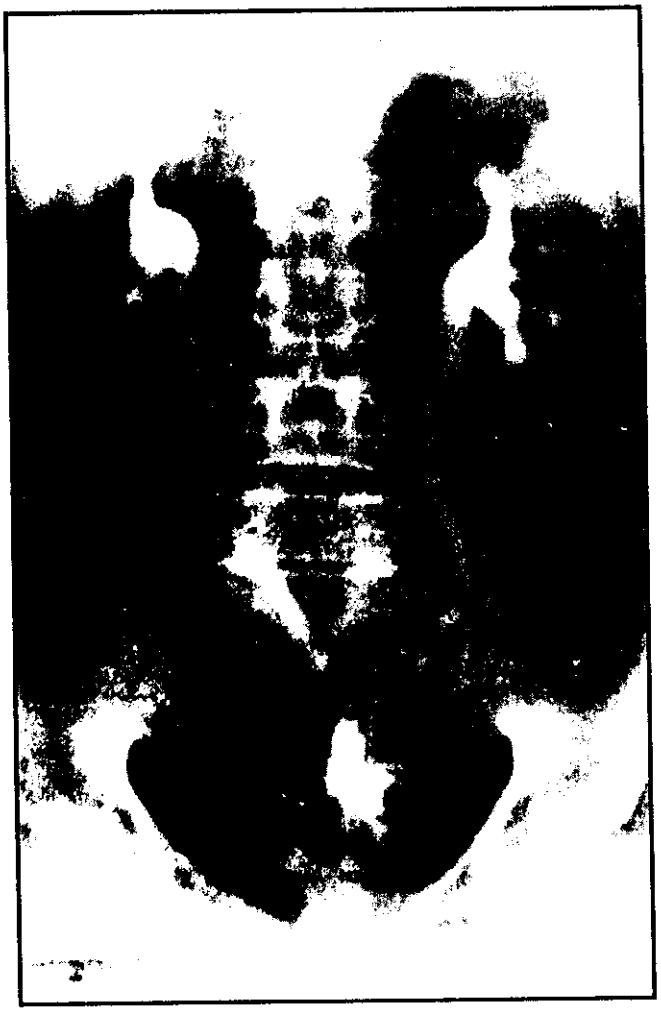


Fig. 25 (Case 1)
Sigma pouch
Postop. I V U

Fig. 26 (Case 1)
Pouchgram

Fig. 27 (Case 2)
Preop. I V U

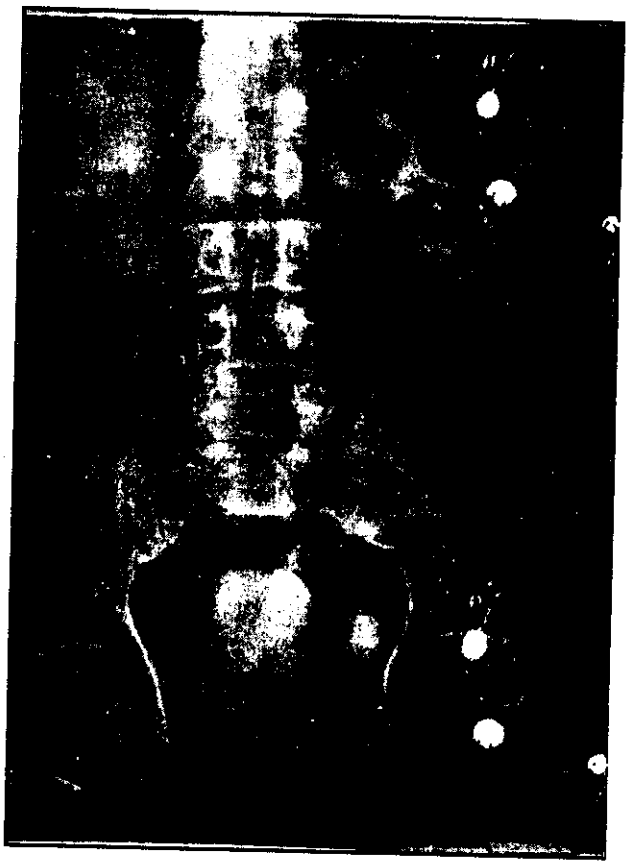


Fig. 28 (Case 2)
Sigma pouch
Postop. I V U

Fig. 29 (Case 2)
Pouchgram

Fig. 30 (Case 3)
Preop. I V U

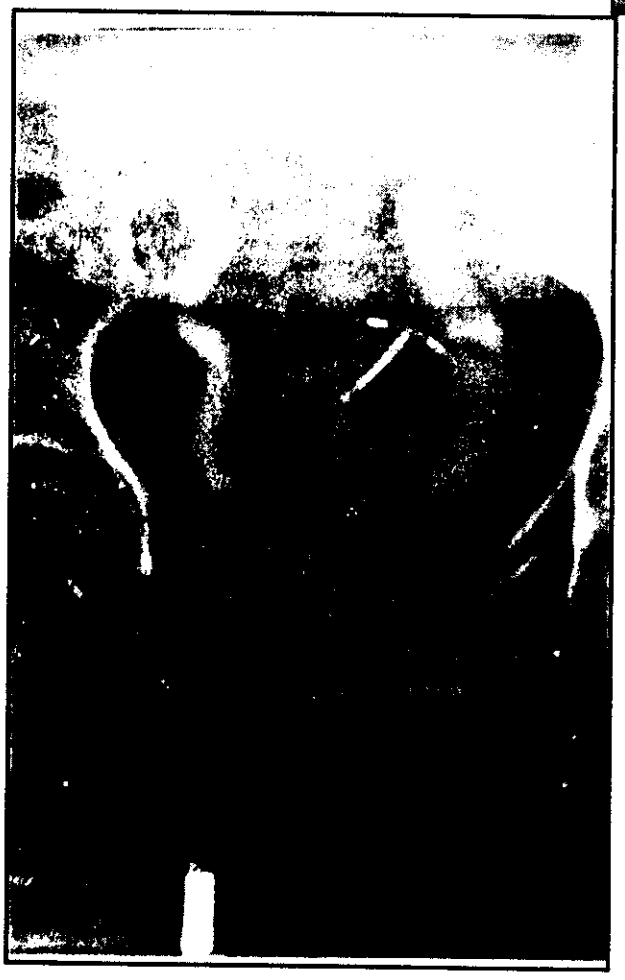


Fig. 31 (Case 3)
Preop. P M

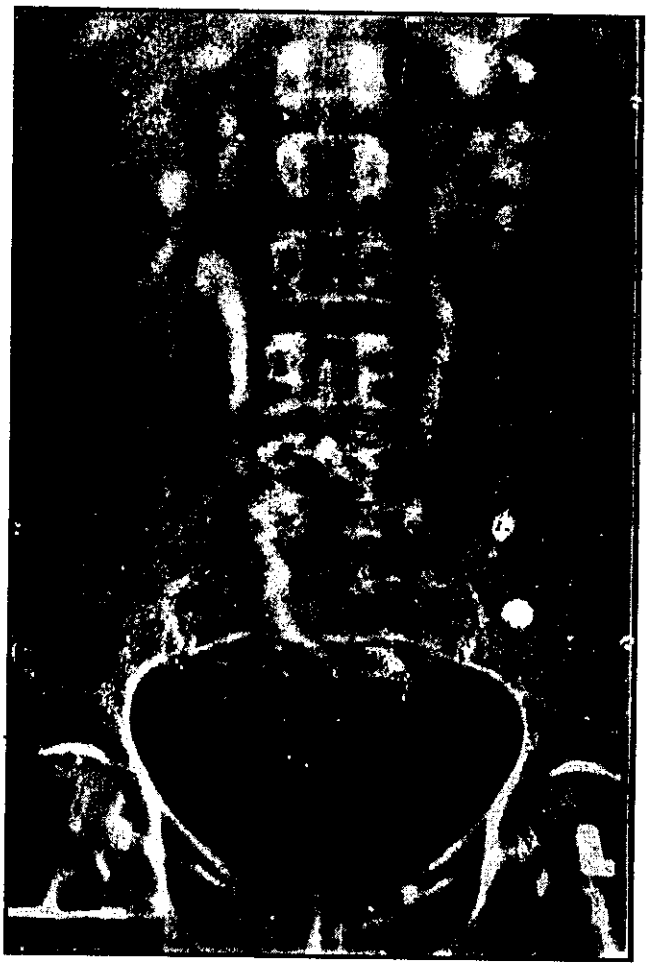


Fig. 32 (Case 3)
Sigma pouch
Preop. I V U

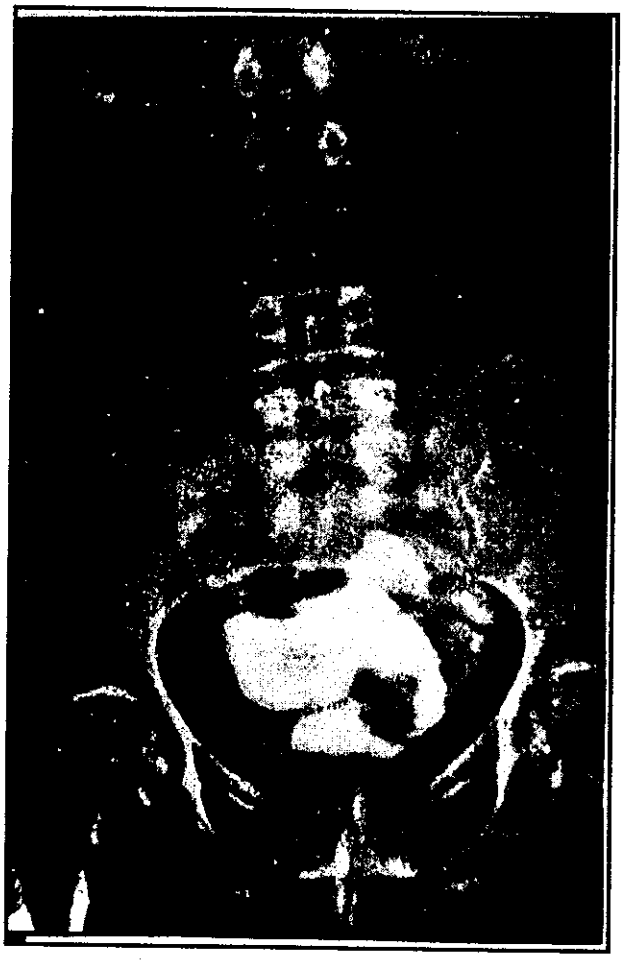


Fig. 33 (Case 3)
Pouch gram 250 cc

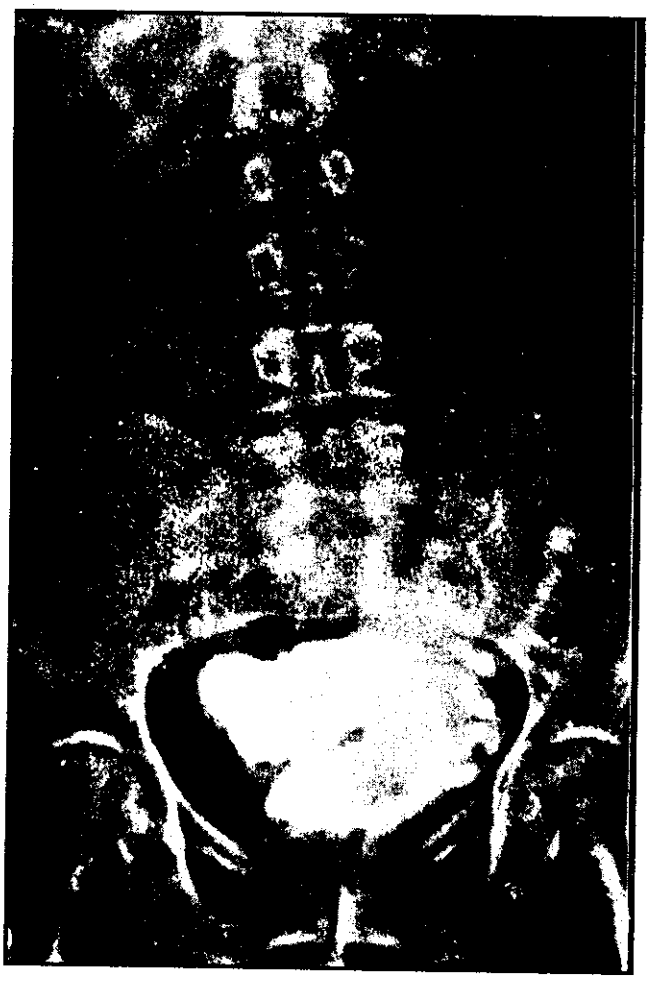


Fig. 34 (Case 3)
Pouch gram 500 cc

Fig. 35 (Case 3)
Preop. I V U

Fig. 36 (Case 4)
Sigma pouch
Postop. I V U

Fig. 37 (Case 4)
Pouchgrame

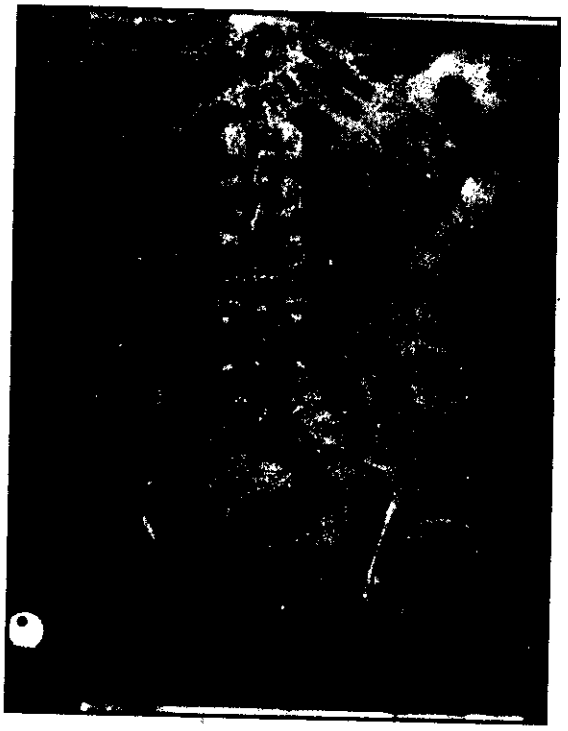


Fig. 39 (Case 5)
Pouchgram 400 cc

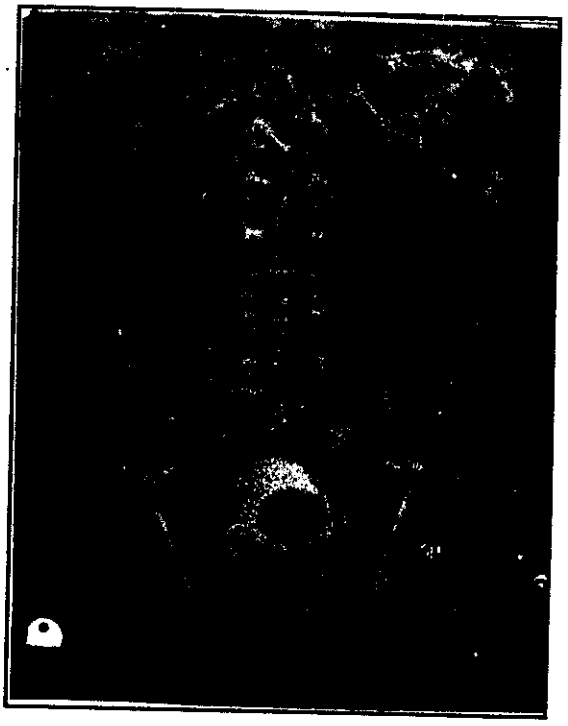


Fig. 38 (Case 5)
Pouchgram 200 cc

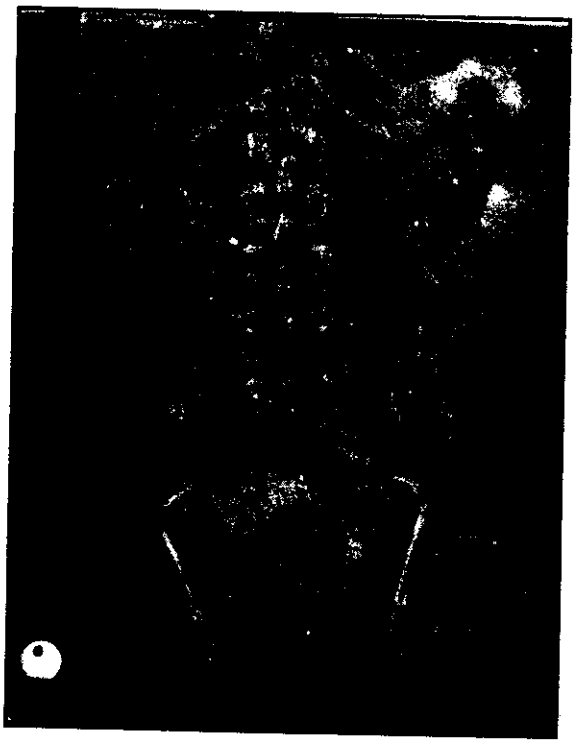


Fig. 40 (Case 5)
Pouch gram 600 cc

Fig. 41(Case 6)
Postop. I V U
With Renal Stones

Fig. 42(Case 6)
Pouch gram and bilateral
Renal stones

Fig. 43
Pouchmetry

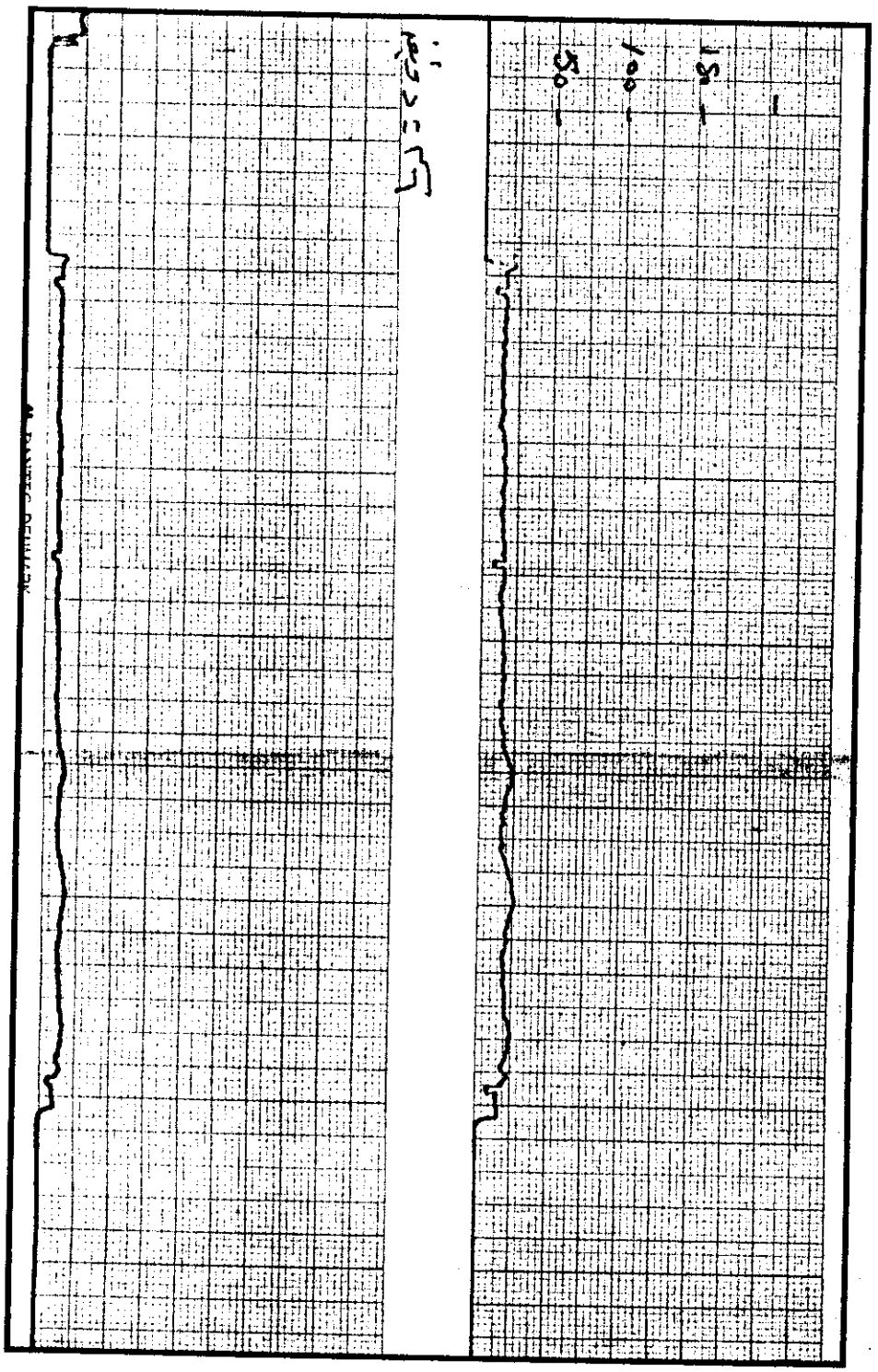


Fig. 44
Pouchmetry