PART III

RESULTS

RESULTS

This study included 49 patients, 44 males and 5 females, with age range from 20-60 years with a mean age of 38.08 years. The period of illness varies from one to 20 years with a mean duration of 5.67 years Table (I).

Clinical Presentation Table 2):-

* 46 cases had epigastric pain; in I9 of them the pain was referred to the back.
* Heart burn was found in 42 cases.
* 25 cases had nausea and vomiting.
* I8 patients presented with gastro-intestinal haemorhage. Both haematemesis and melena were found in I2 cases, haematemesis alone in 2 cases and melena alone in 4 cases.
* 45 patients had epigastric tenderness.
* All the patients received medical treatment in the form of antacids and antispasmodics.

Table(I)

Sex,age and period of illness

Sex		Age	Period of illness
Male	Female	20-60 Y.	I - 20 Y.
44	5	M = 38.08 Y.	M =5 . 67 Y.

Post-operative Results:-

Post-operative Mortality: was nil.

Post-operative Course and Complications:-

* During the operation, splenectomy was necessary in one case, in whom the spleen was injured during the operation. No serious operative complications occured and post-operative recovery was invariably rapid. Nasogastric tubes were used in all patients and tubes were removed on the second or third day. Fluids were started early and a light diet was commenced on the third day.

* There was no case of lesser curve necrosis.

* Post-gastric retention: was present in one case after P.C.V., in whom probably the nerve of latarjet might have be injured , and was treated by gastro-jejunostomy . Fig.(I):to 5 showing to endoscopic and barium meal picture.

Table (2)

Clinical presentation

	Epigastric pain	Nausea	Vomiting	Haematemesis only	Melena only	Haemet. and Melena	Heart burn	Epigastric tenderness	History of medical treatment
No.of cases	46	25	25	2	4	I2	42	45	49
Percent	93.8	5I.02	5I.02	4.08	8.I6	24.48	85.7	9I.8	IOO

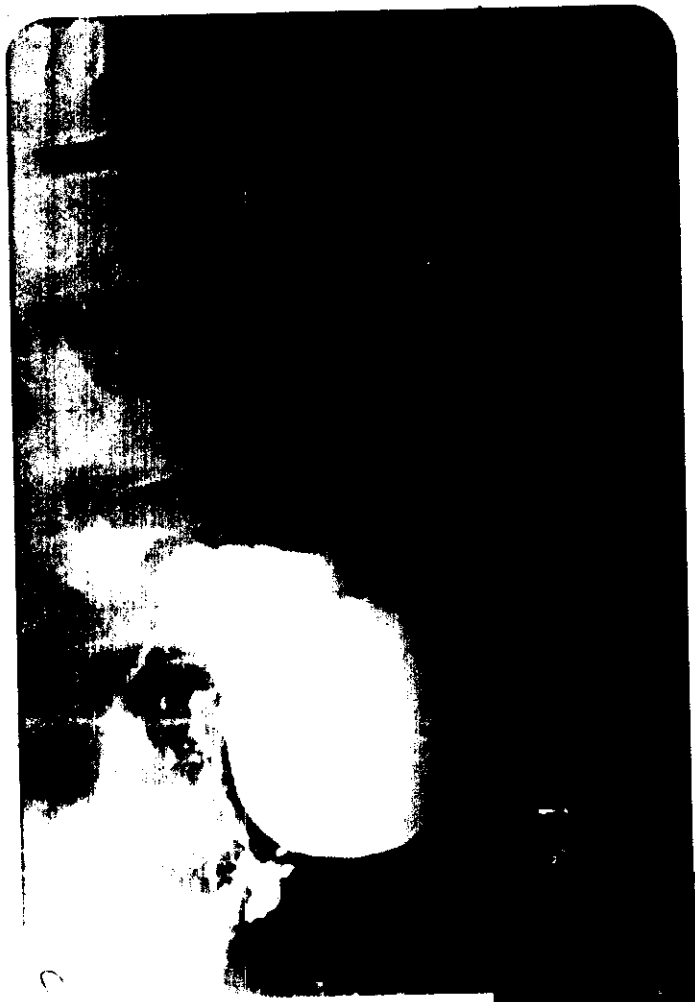


Fig.(I):Quarter of an hour after ingestion of barium.

Fig.(2):I8 hours after ingestion of barium:gastric retention.

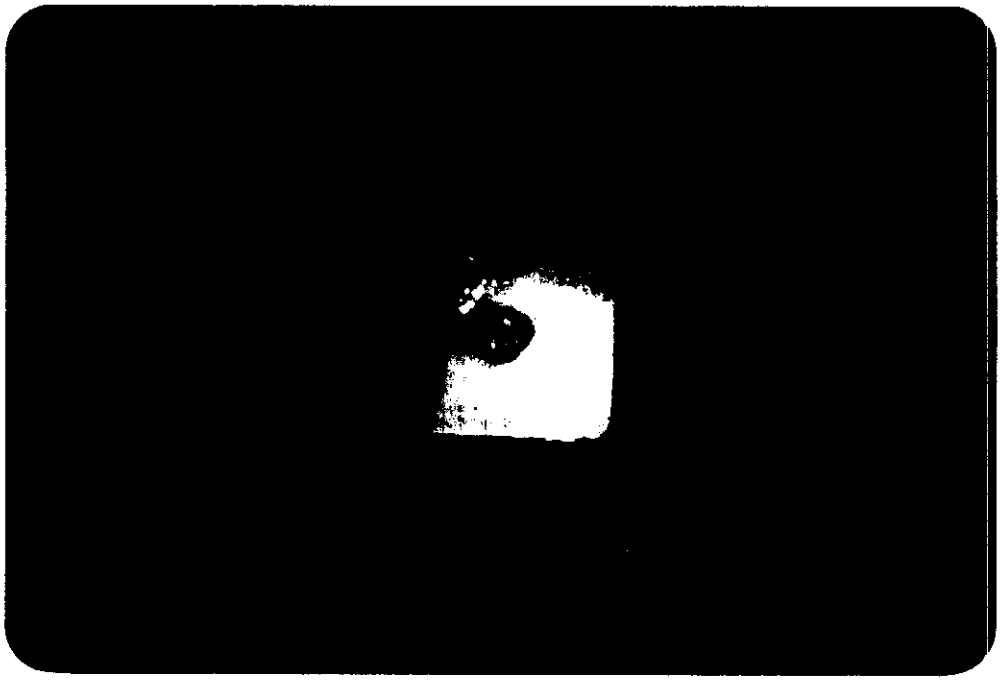


Fig.(3):Endoscopic picture of narrow pyloric opening after P.C.V.

Fig.(4):Endoscopic picture showing loss of antro-pyloric movement in case of Gastric retension after P.C.V.

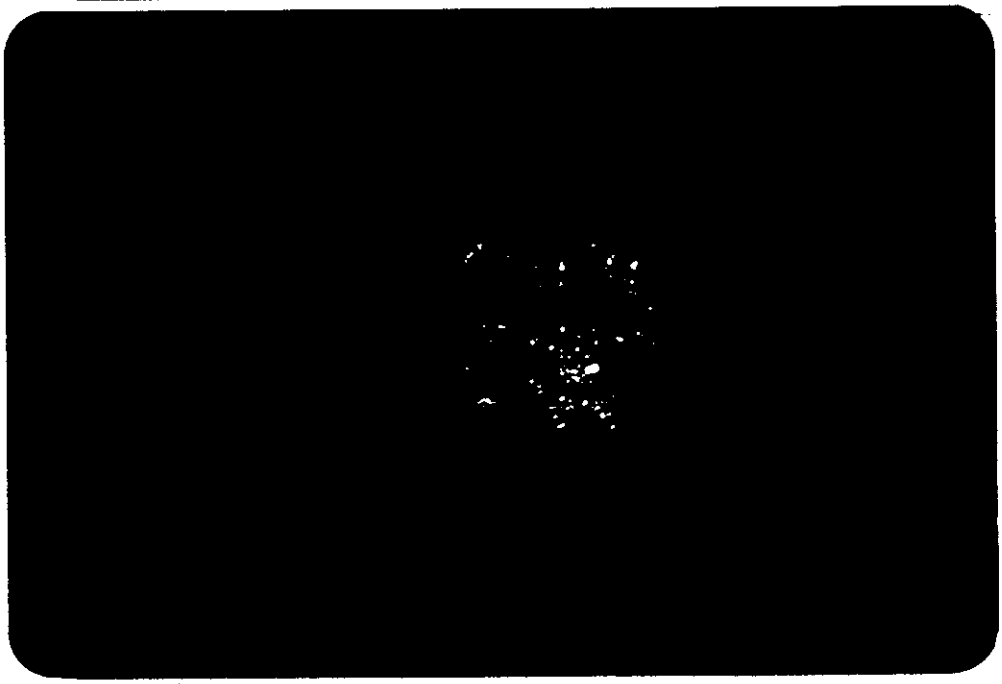


Fig.(5):Endoscopic picture showing gastrojejunostomy as a drainage procedure.

Another case after S.V. + P.complained of gastric retention and endoscopic examination showed narrow pyloroplasty. Fig.(6 & 7).

* Recurrence : recurrent ulceration or failure of the original ulcer to heal occured in 3 cases (6,I2%). In S.V.+P. group, one case had recurrence after 6 months and in a second case the ulcer is still not healed till now i.e., after 2 years of follow-up.In T.V.+P. group ,a third case showed delayed healing after one and half years and the patient was receiving medical treatment and diet regimen. Fig.(8,9 & IO).

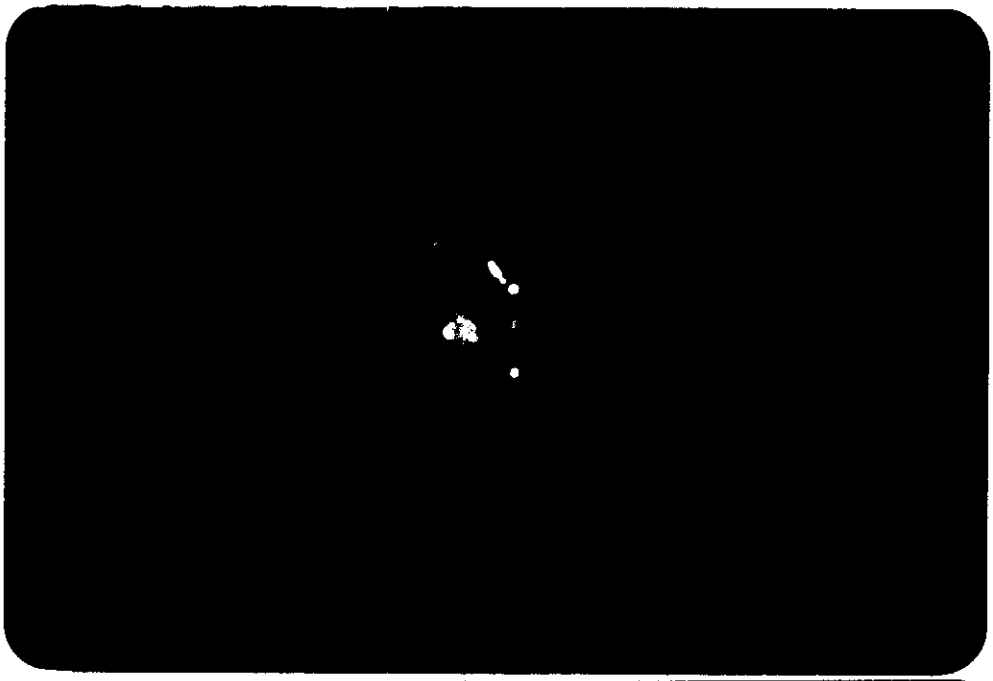
* Dysphagia: was a common post-operative complaint. It did occur in 24 cases, (48.9%). Dysphagia presented within the first week after surgery, mostly in the form of substernal distress soon after solid food was given.

In all the cases, the severity of dysphagia did range from mild to moderate and was transient, it lasted from 3-4 weeks and disappeared spontaneously. Endoscopy failed to visualize any organic lesion in a no of these patients. The highest incidence of dysphagia was found following P.C.V. (IO cases: 58.8%) followed by S.V.+P. (8 cases 53.3%) and its incidence was lowest following T.V. + P. (5 cases : 33.3%).

The post-operative symptoms are shown in table 3 .

Fig.(6): Pre-operative D.U.

Fig.(7):Endoscopic picture 3ms after S.V.+P. showing narrow deformed pyloroplasty.



Serial duodeno-scopy of unhealed duodenal ulcer after S.V.+P.

Fig.(8):Pre-operative.

Fig.(9):After 6m.

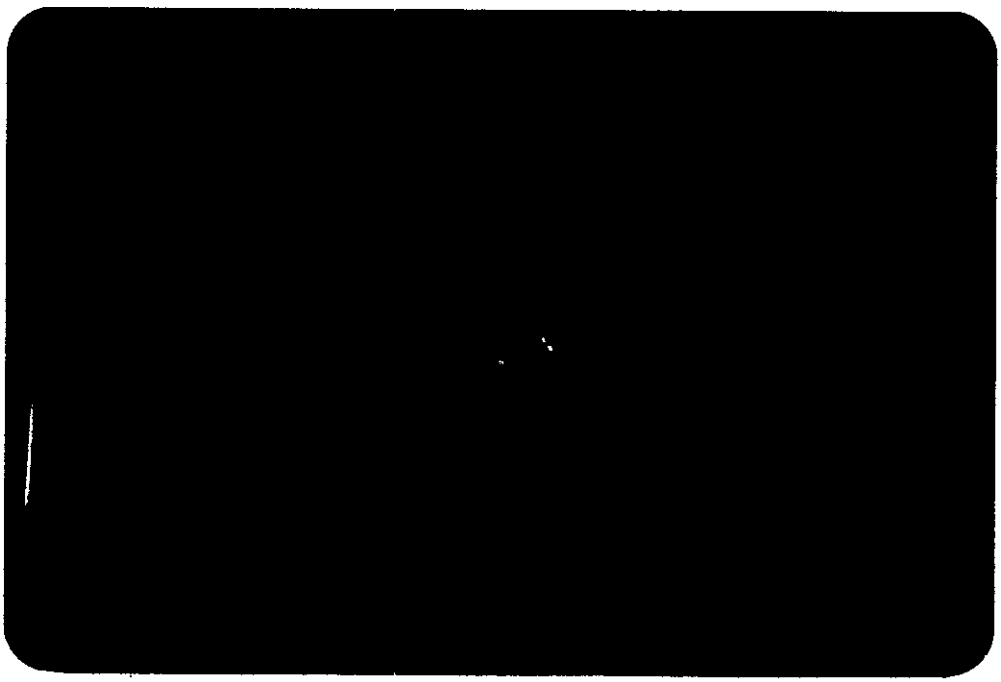


Fig.(IO):After one and half year.

Table (3)

Frequency of post-operative Symptoms

Symptoms	P.C.V.		S.V. + P.		T.V. + P.	
	No.	%	No.	%	No.	%
Epigastric fullness	5	29	5	33.3	3	I7.6
Early dumping	2	II.8	2	I3.3	3	I7.6
Late dumping	2	II.8	-	—	1	5.8
Nausea	2	II.8	2	I3.3	1	5.8
Food vomiting	3	I7.6	2	I3.3	1	5.8
Bile vomiting	-	--	1	6.66	-	—
Heart burn	4	23	1	6.66	1	5.8
Flatulence	3	I7.6	4	26.6	4	23.5
Regurgitation	1	5.8	-	—	-	—
Diarrhea	2	11.8	2	I3.3	3	I7.6

By applying Visick grading of functional results to our cases at their follow-up of II-56 months after operation, we have shown that most of the patients were included in category I & II which are regarded as highly satisfactory.

Categorie III: Included one case in P.C.V. group , which complained of persistent heart burn, flatulence,regurgitation and early dumping which strongly suggested recurrent ulceration, but endoscopy and X-Ray follow-up revealed absence of recurrent ulceration.

Categorie IV: Cases are of special interest in that they represent failure of surgery. The cause of failure in P.C.V. group is represented by a patient with retention and loss of antral and gastric motility which indicated injury to the nerve of latarjet. This patient has been re-operated on and a drainage operation "gastro-jejunostomy" was added by the end of 6 months.

In S.V. + P. Group: One case had a narrow pyloroplasty and gastro-jejunostomy has been added by the end of the first year. A second case had recurrent ulcer at the 6th month, and a third case showed unhealing till now i.e. after 2 years of follow-up.

In T.V. + P. Group : A cases showed delayed healing after I½ years on medical treatment and diet regimen .(Table 4).

Table (4)

Visick Grading of Functional Results

	No.of pts.	Time of follow-up (ms)	GRADE I		GRADE II		GRADE III		GRADE IV	
			No.	%	No.	%	No.	%	No.	%
P.C.V.	I7	I4.56	IO	58.8	5	29.4	I	5.9	I	5.9
S.V.+P.	I5	I4-42	IO	66.6	2	I3.3	-	--	3	20.0
T.V.+P.	I7	II-48	8	4.7	8	47.0	-	--	I	5.9
TOTAL	49		28	57.I4	I5	30.67	I	2.04	5	IO.20

Laboratory Results:-

A. Gastric Acidity:-

Tables 5a,b,c and graphs 2a,b,c, 3a,b,c, 4a,b,c, show the basal acid output and the pentagastrin-stimulated acid output (maximal acid output) in P.C.V., S.V. + P. and T.V. + P. groups pre-operatively and post-operatively during the 3rd and 4 th weeks,after 6 months one year, two years and three years..

In P.C.V. group, the pre-operative basal acidity ranged from 26-65 mEq/L. with a mean value of 38.88 ± I2.55. The pentagastrin-stimulated gastric acidity ranged from 48 - 90 mEq/L. with a mean value of 69.94 ± I3.07. Both values decreased significantly ($P < 0.001$) after operation reaching mean values of 9.57 ± 6.43 and 2I + I2.6 mEq/L. respectively 3-4 weeks after operation. The percentage of reduction being 75.38 % and 69.97% respectively. During the period of follow-up no significant changes occured.

In S.V. + P. Group: the pre-operative basal acid output ranged from I9.5-4I mEq/L with a mean value of 30.83± 7.8 mEq/L. The pentagastrin-stimulated secretion ranged from 30.5-76mEq/L. with a mean value of 56.68 ± I4.74 mEq/L. Both values decreased significantly ($P < 0.001$) after operation reaching mean values of II.43 ± 5.37 and 23.66±7.73mEq/L.

respectively 3-4 weeks after operation. The percentage of reduction being 62.92% and 58.25% respectively. No significant changes occured during the following three years.

In T.V. + P. group: the pre-operative basal acid output ranged from I5-42.5 mEq/L. with a mean value of 3I.47± 7.69 mEq/L. The maximal acid output ranged from 40-75mEq/L. with a mean value of 57.38 ± IO.93 mEq/L. Both values decreased significantly (P <0.OOI) after the operation to values of 8.68 ± 4.3I and I6.7 ± 5.68 mEq/L. respectively 3-4 weeks after the operation. The percentage of reduction being 72.4I% and 70.89 respectively. No significant changes occured during the follow-up period.

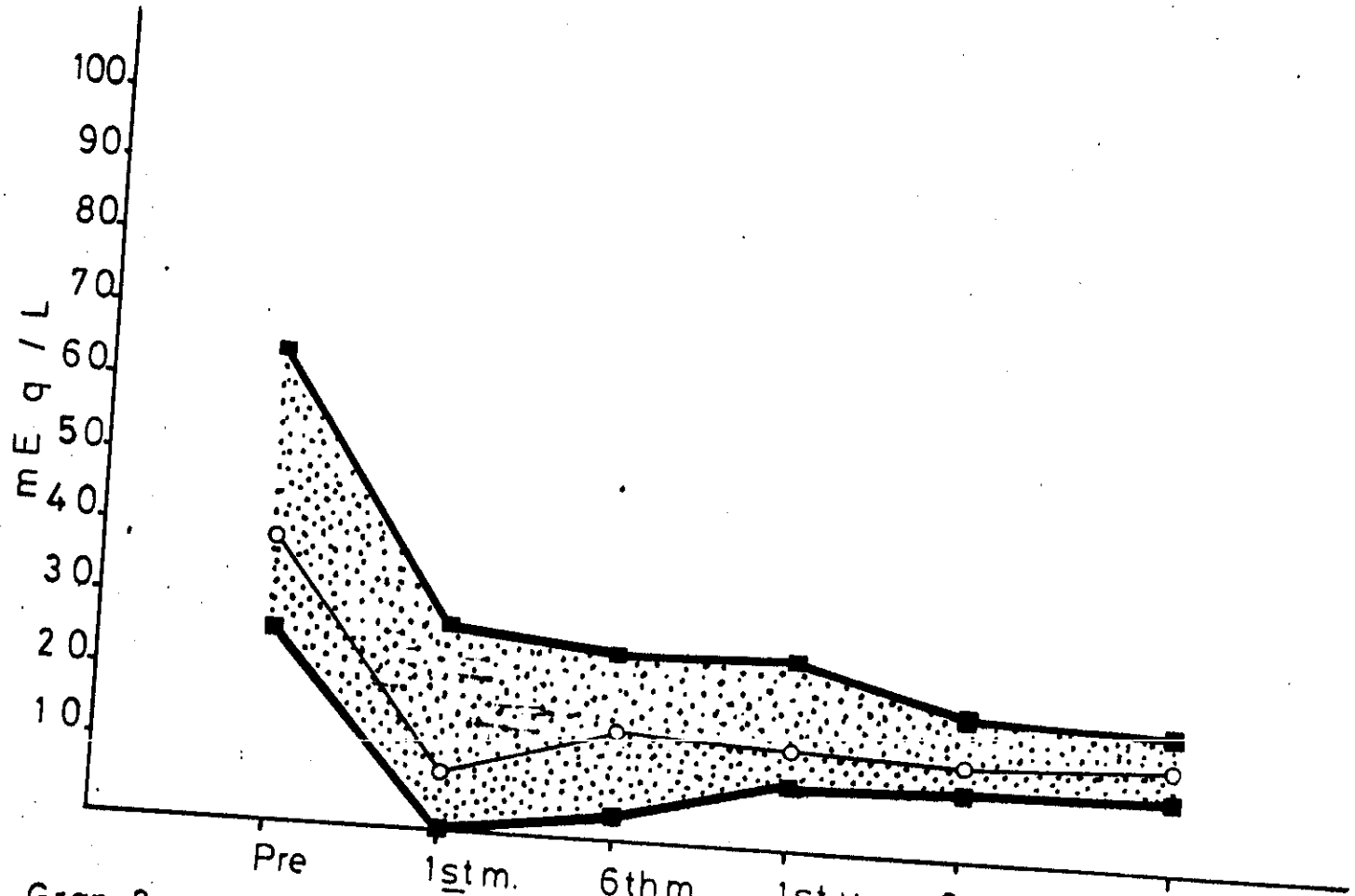
Table (5a)

Pre and Post-operative Gastric Acidity in PCV Group

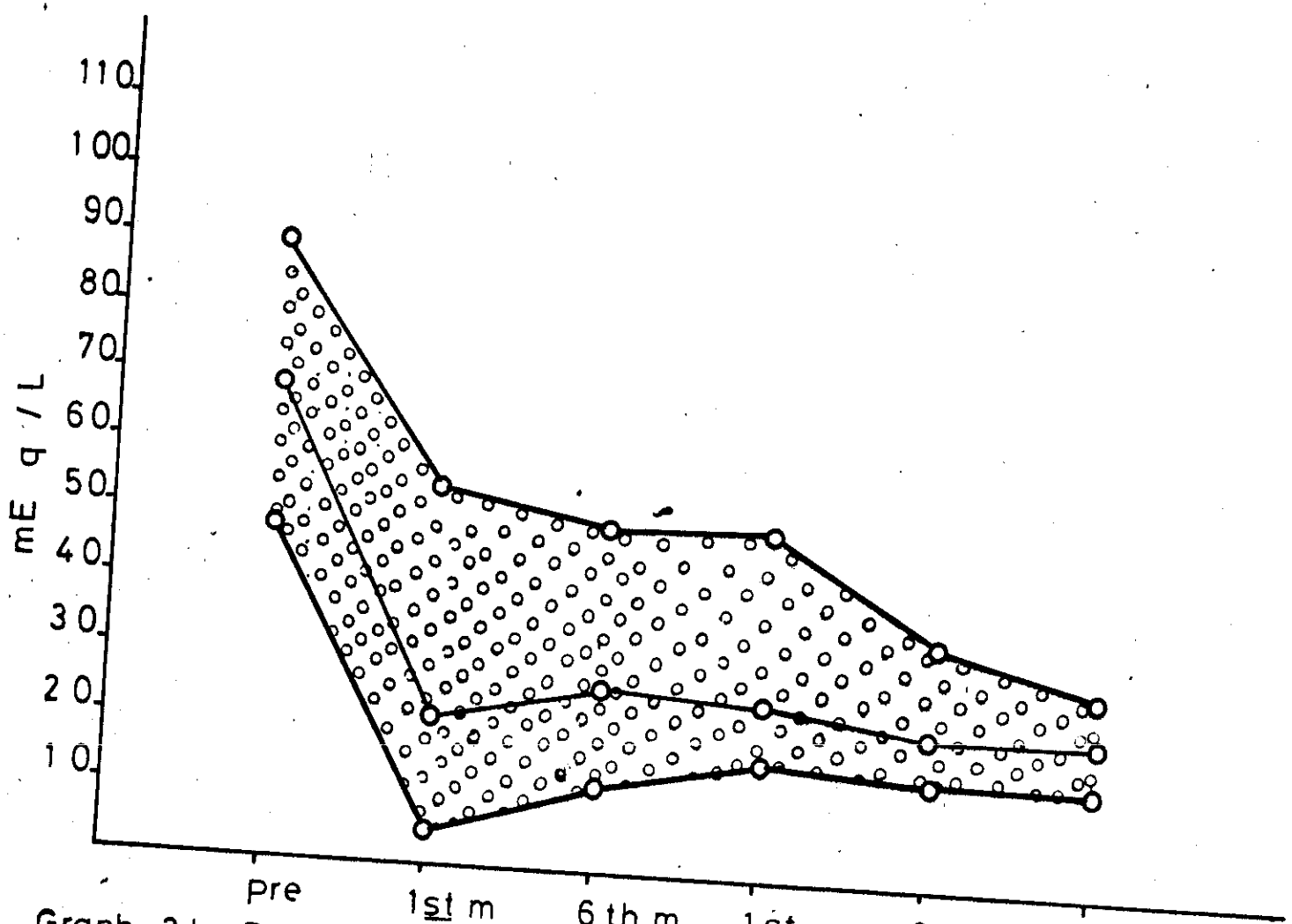
No.	Basal acidity						After pentagastrin					
No.	Pre	3-4W.	6m.	Isty	2 ndy	3rdy	Pre	3-4W.	6m.	Isty	2 ndy	3rdy
I	60	-	-	I8	I5.5	I8	90	-	-	30	24	24
2	46	7.3	-	I3	I3	I3	77	I5	-	22	22	25
3	40	I3	I9	I9	I9	I6	62	20	27	27	25	25
4	52	0	I3	I3	I5	I6	7I	5	20	20	22	20
5	29	8.3	I9	8	I0	I0	43	I6	I8	I6	20	22
6	34	4.3	--	I0	I5	I5	65	I6	--	I8	25	28
7	30	I2	--	--	--	I4	64	20	--	--	--	22
8	4I	I5	I8	I3	I3	I5	8I	4I	38	28	28	28
9	32	27	25	25	--	--	70	55	50	50	--	--
I0	26	6	I3	I2	I2	--	72	I0	28	25	25	--
II	I8	5	3	8	8	8	48	I3	I2	I5.3	I5	I5
I2	25	4	8	8	-	I0	66	I6	20	20	--	22
I3	32	7	-	I2	I2	--	76	I6	--	30	25	--
I4	35	-	-	--	-	--	85	-	--	--	--	--
I5	65	8	-	--	-	--	90	25	-	--	--	--
I6	44	I3	I0	--	-	--	7I	28	I7	--	--	--
I7	42	I3.7	I4	--	-	--	58	29	30	--	--	--
Range	26-65	0-27	3-25	8-25	8-I9	8-18	48-90	5-55	12-50	16-50	15-35	15-28
Mean	38.88	9.57	I4.2	I3.25	I3.25	I3.5	69.94	21.0	26.0	25.I0	24.I	23.I
S.D.	I2.55	6.43	6.34	5.I4	3.08	3.2I	I3.07	I2.66	II.32	9.39	5.22	3.87
%Red.		75.38	63.47	65.92	65.92	65.27		69.97	62.82	64.II	65.54	66.97
P_I <		0.00I						0.00I				
P_2 <			0.I	0.I	0.I	0.I			0.I	0.I	0.I	0.I

P_I : *Significant difference between pre-operative and 3-4 W. post-operative values.*

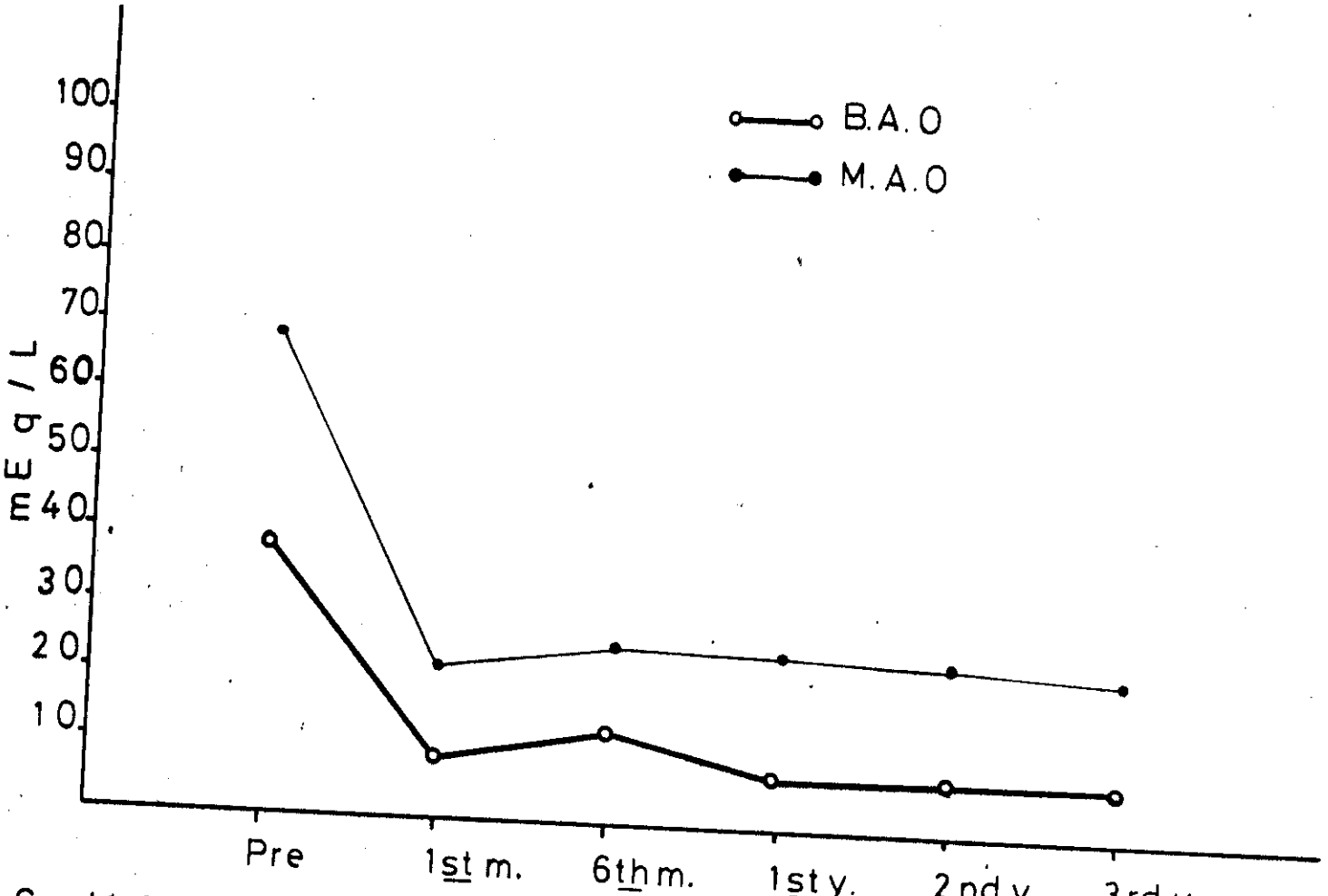
P_2 : *Significant difference between post-operative follow-up values.*



Grap-2a Pre- and post- operative basal acidity (range and mean) in P.C.V. group.



Graph 2 b Pre- and post- operative pentagastrin stimulated acidity (range and mean) in P.C.V group.



Graph 2c Pre- and post-operative basal and maximum acidity in P.C.V. group.

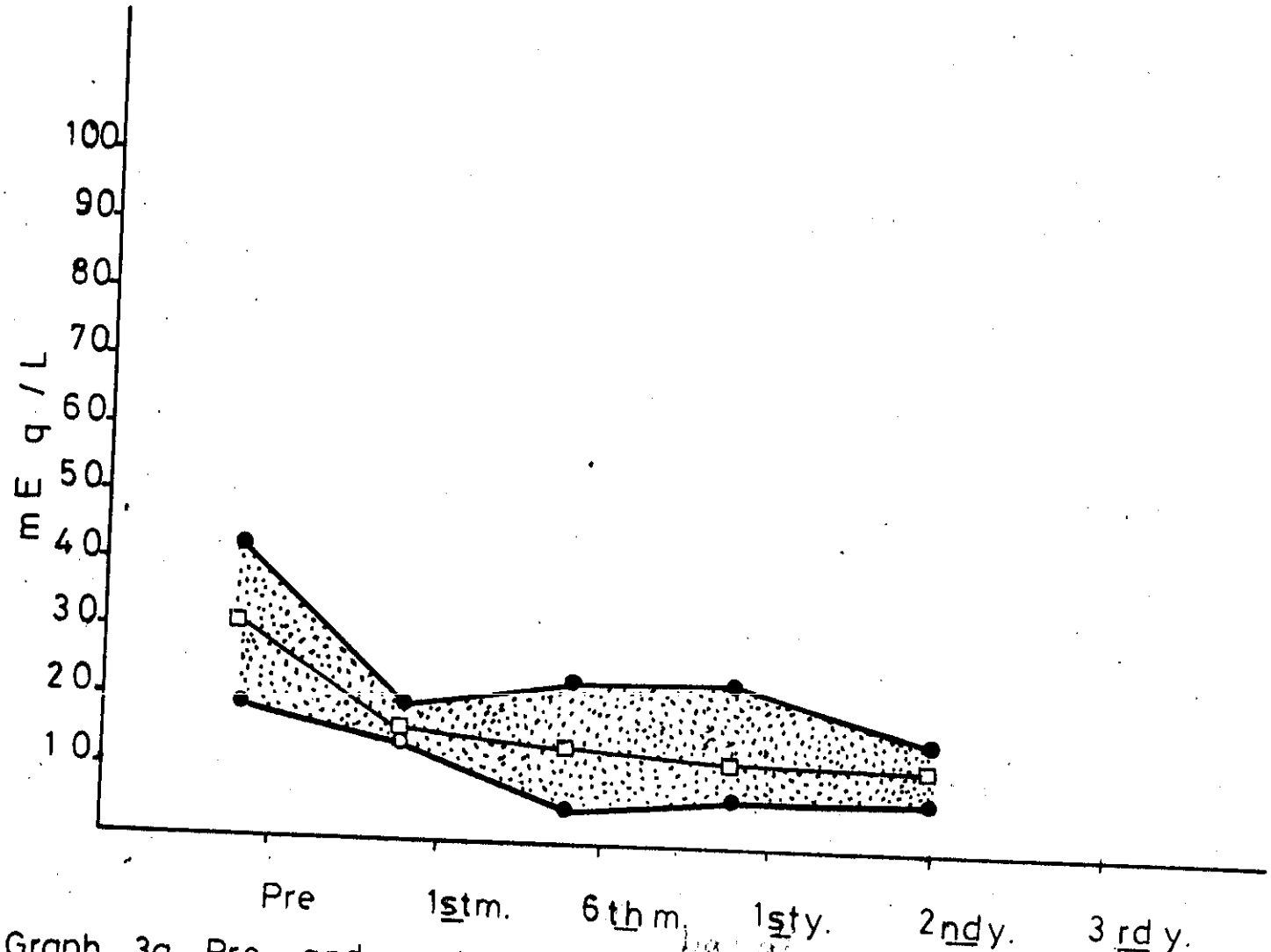
Table(5b)

Pre and Post-operative Gastric Acidity in S.V+P Group

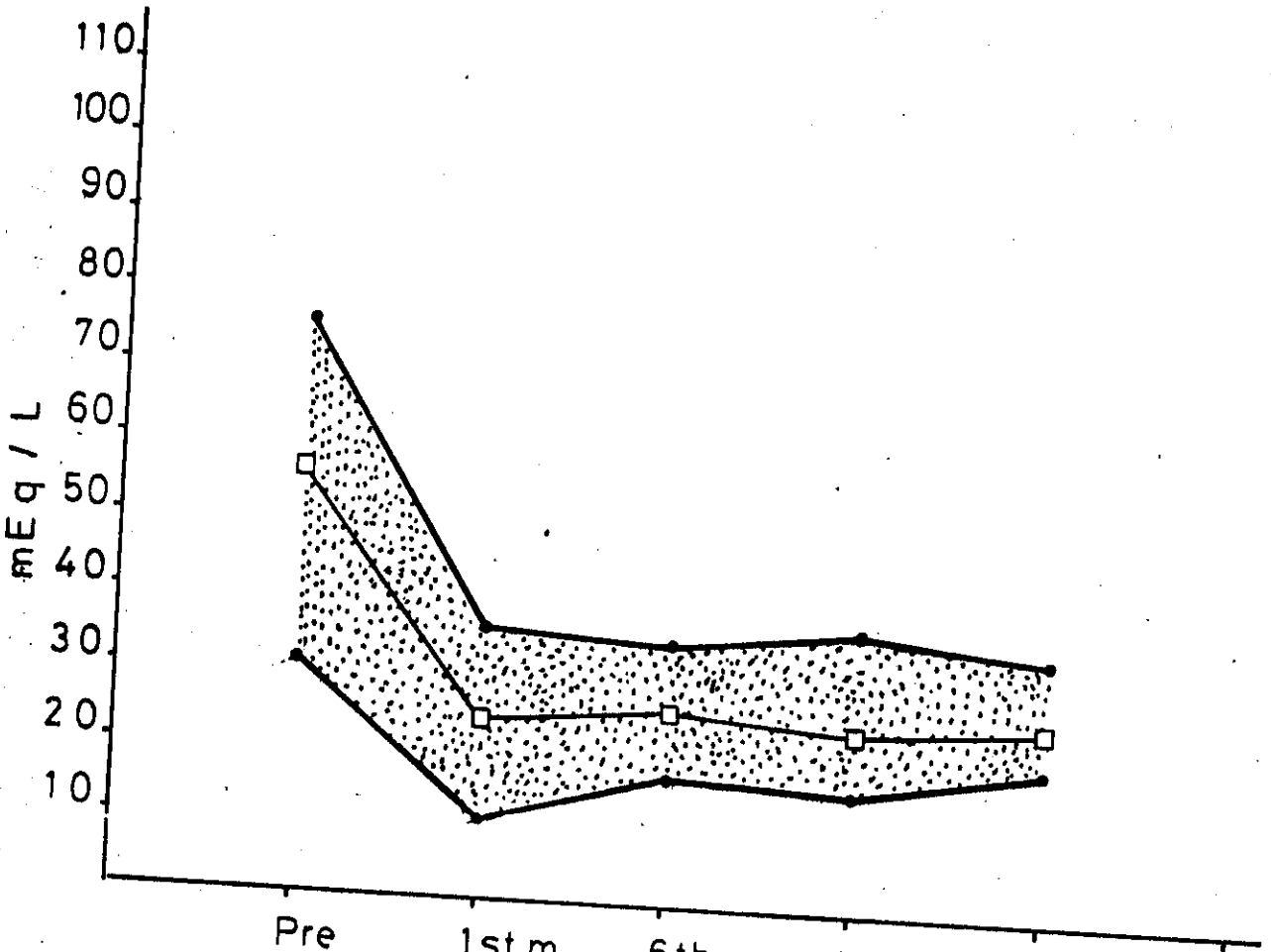
No.	Basal Acidity						After Pentagastrin					
	Pre	3-4W.	6m.	I Y.	2 Y.	3 Y.	Pre	3-4W.	6m.	1 Y.	2 Y.	3 Y.
I	30	I0	I3	--	--	--	40	20	22	--	--	--
2	23	4	-	7	I3	--	65	35	--	28	26	--
3	26	I0	I4	-	I0	--	65	28	30	--	30	--
4	28	5	5	8	8.5	--	65	I8	18	18	13	--
5	41	10	15	--	I8	--	76	33	33	--	35	--
6	28	I3	I0	--	I4	--	44	I9	I8	--	20	--
7	30	I0	--	I2	--	--	52	I8	--	20	--	--
8	25	6	I2	--	I2	--	40	I0	20	--	20	--
9	38.5	I3	I5	--	--	--	58.2	22	23	--	--	--
I0	30	I2	I2	I0	I2	--	58	25	25	20	25	--
II	30.5	II	--	--	--	--	67.5	22	--	--	--	--
I2	44	25	23	23	I6	--	75	33	33	33	28	--
I3	40.5	I7	I8	I8	--	--	74	34	35	37	--	--
I4	I9.5	I7.5	I8.6	--	--	--	40	25	26.6	--	--	--
I5	20.5	8	I3	9	--	--	30.5	I3	I7	I6	--	--
Ran.	I9.5-4I	4 -I7.5	5-23	7-23	8.5-I6		30.5-76	I0-35	I7-35	I6-37	20-35	
Mean	30.83	II.43	I4.05	I2.43	I2.94		56.68	23.66	25.05	24.57	25.87	
S.D.	7.80	5.37	4.54	5.9I	3.08		I4.74	7.73	6.44	8.I2	5.II	
%Red		62.92	52.96	59.68	58.82			58.25	55.0I	56.65	54.35	
P_I <		0.00I						0.00I				
P_2 <			0. I	0.I	0.I				0. I	0. I	0. I	

P_I : *Significant difference between pre-operative and 3-4 W. Post-operative values.*

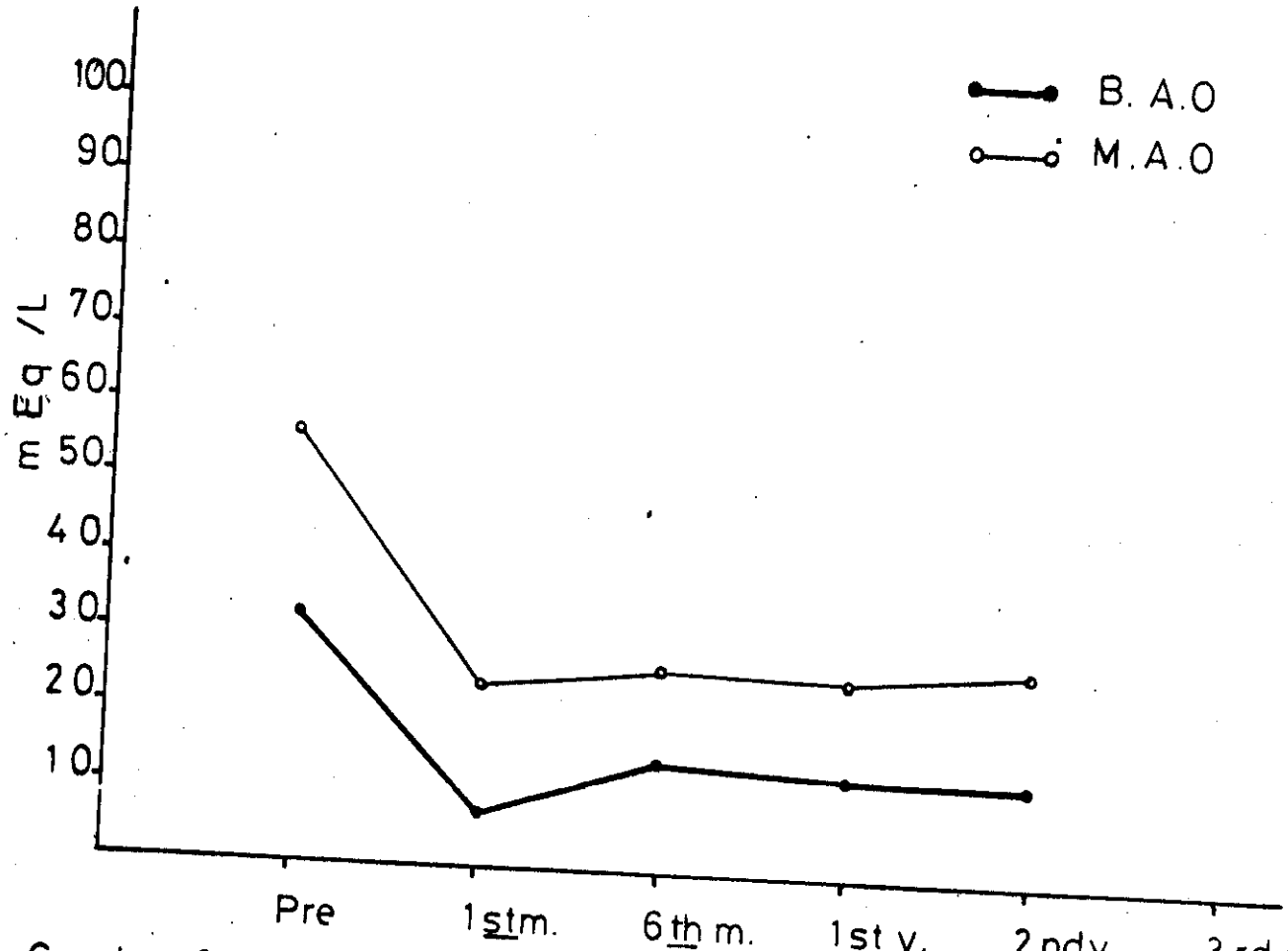
P_2 : *Significant difference between post-operative follow-up values.*



Graph 3a Pre- and post-operative acidity in S.V + P (range and mean) in S.V + P



Graph 3b Pre and post_ operative pentagastrin stimulated gastric acidity (range mean) in S:V + P group.



Graph 3c Pre and post_ operative basal and pentagastrin stimulated gastric acidity in S.V + P group.

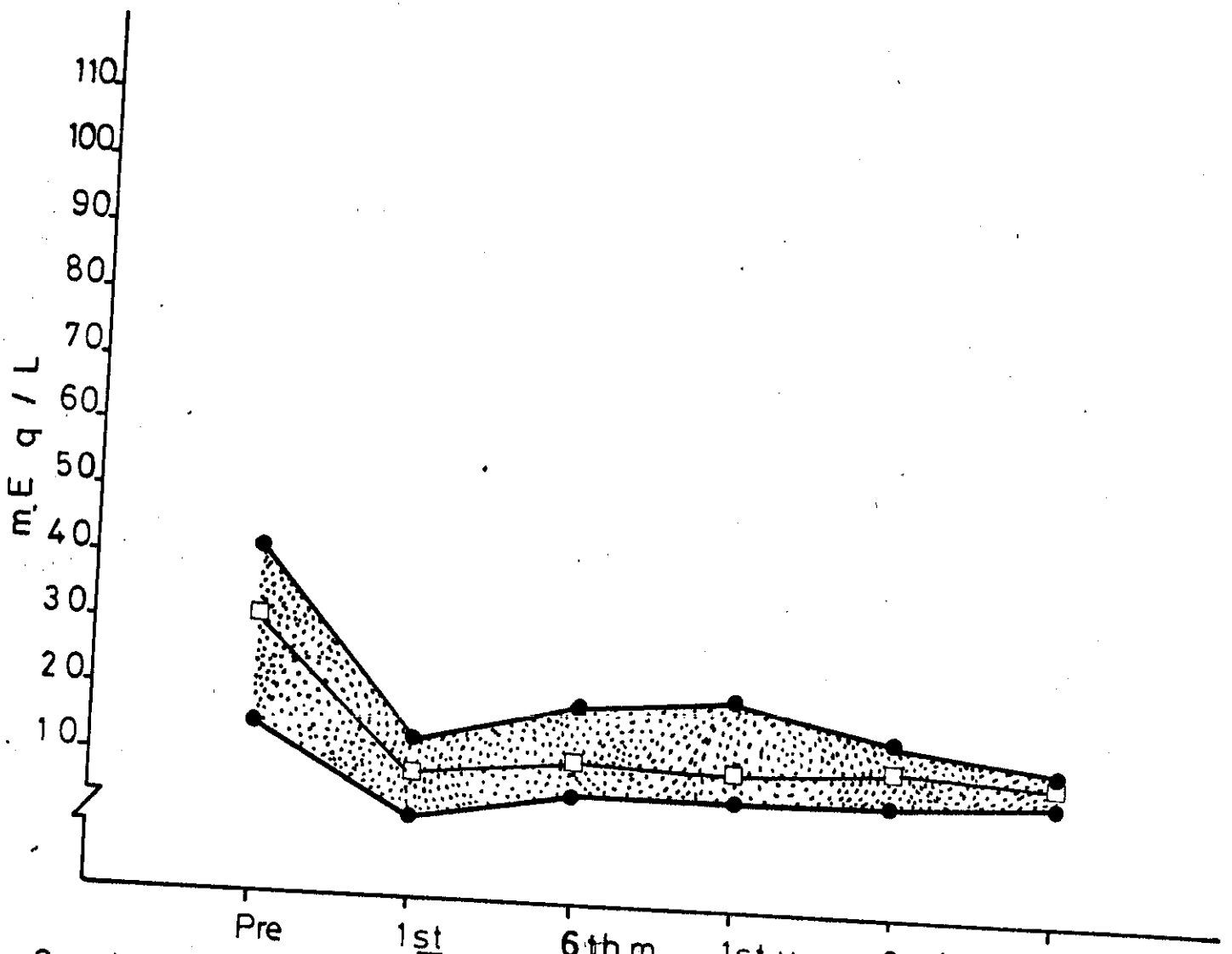
Table(5c)

Pre and Post-operative Gastric Acidity in T.V+P Group

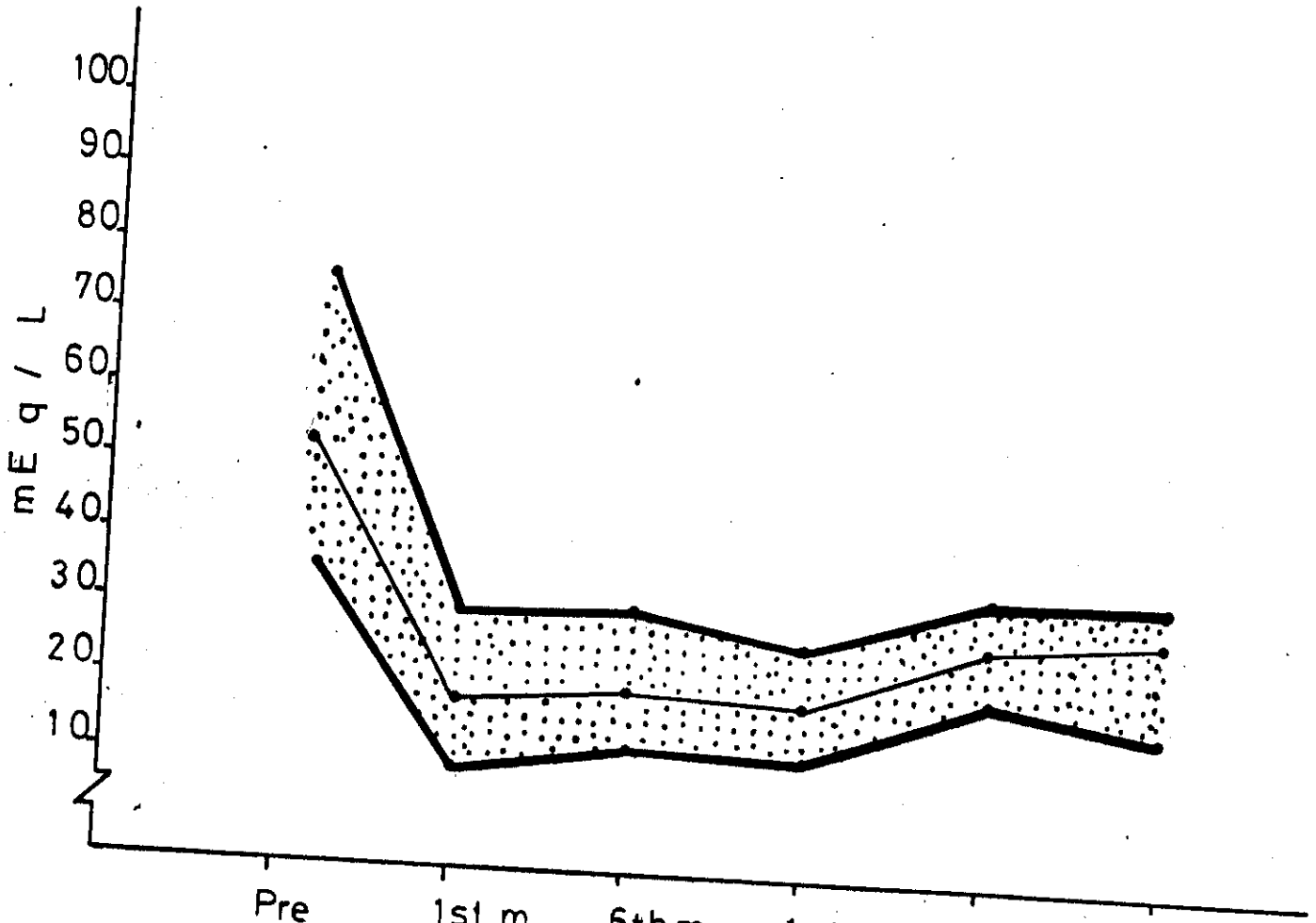
No.	Basal Acidity						After Pentagastrin					
	Pre	3-4W.	6m.	I Y.	2 Y.	3 Y.	Pre	3-4W.	6m.	I Y.	2 Y.	3 Y.
I	33	4	6	6	8	I0	45	8	I2	I3	I8	I6
2	37	8	I2	I2	I2	I3	55	22	25	25	25	28
3	I5	I0	I0	I0	I2	I3	45	30	26	26	28	25
4	35	I3	-	-	-	-	6I	22	--	--	--	--
5	42	2	2	9	7	I0	64	I6	--	23	20	23
6	30	2	I3	-	I5	I3	65	I6	22	--	24	25
7	30	I3	29	2I	I6	8	65	I8	30	20	23	I8
8	30	4	I3	--	I5	-	65	8	20	--	25	--
9	40	I0	I5	--	--	--	75	I6	20	--	--	--
I0	42.5	I2	I2	--	I5	-	66	I7	I8	--	20	--
II	33	I6	I4	--	I6	-	40	20	20	--	22	--
I2	I8.5	II	I5	--	-	-	40.5	20	20	--	--	--
I3	29	7	I0	--	--	-	65	I5	I8	--	--	--
I4	25	4	8	I0	--	-	49	I0	I2	I3	--	--
I5	25	I2.5	8	--	--	-	45	I7	I4	I4	--	--
I6	39	7	I0	--	--	-	65	I0	I2	I2	--	--
I7	3I	I2	--	--	--	-	65	20	--	--	--	--
Range	I5-42.5	2-I3	6-20	6-21	7-16	8-I3	40-75	8-30	I2-30	I2-26	20-28	I6-28
Mean	3I.47	8.68	II.86	II.6	I2.89	II.I7	57.38	I6. 7	I9.2I	I8.25	22.78	22.I5
S.D.	7.69	4.3I	3.59	5.68	3.4I	2.I4	I0.93	5.68	5.49	5.89	3.II	4.59
%Red		72.4I	62.3I	63.I3	59.04	64. 5		70.89	66.52	68.I9	60.29	60.78
P_I <		0.00I						0.00I				
P_2 <			0.I	0.I	0.I	0. I			0. I	0. I	0. I	0. I

P_I : *Significant difference between pre-operative and 3-4 W. post-operative values.*

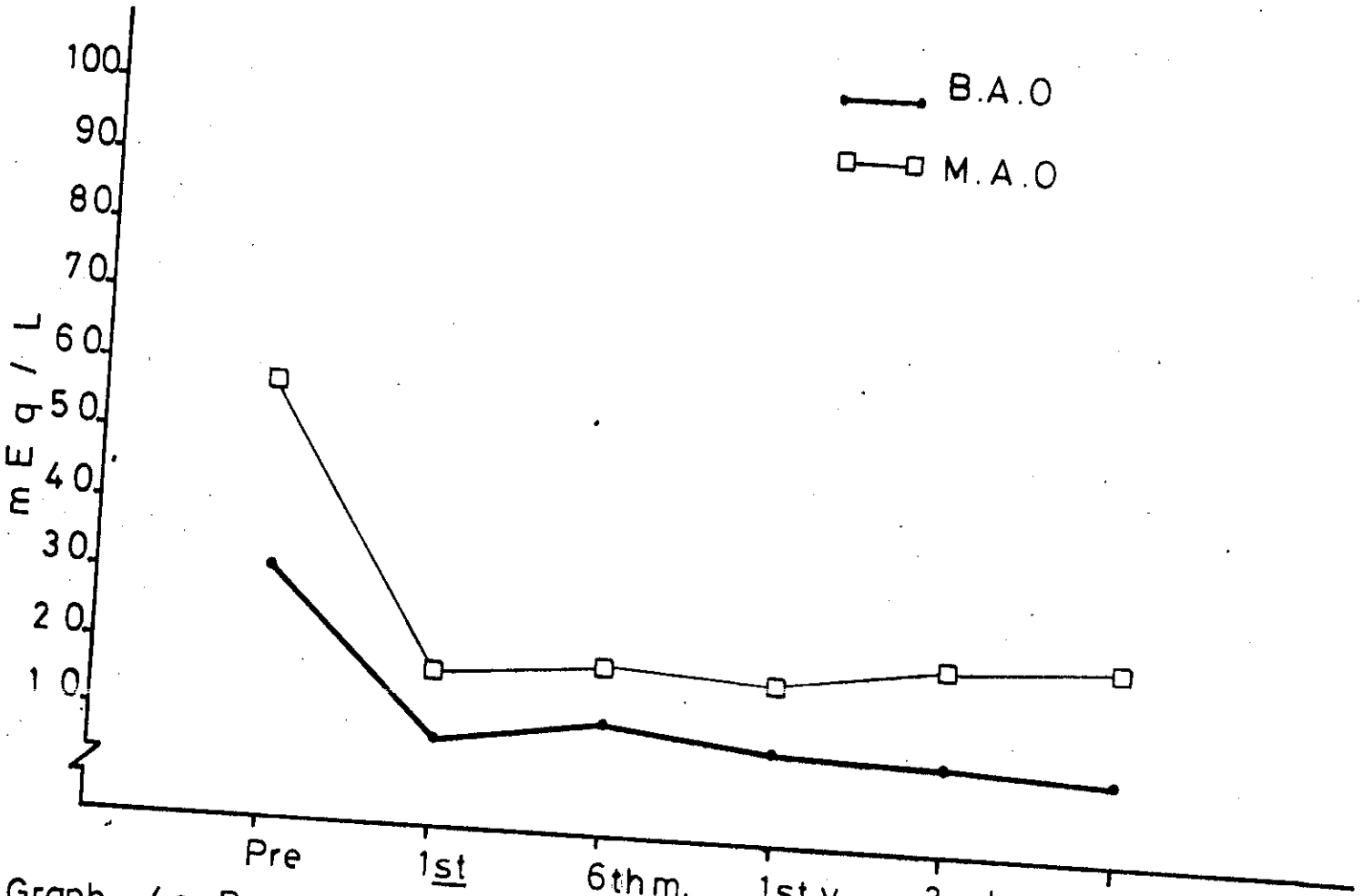
P_2 : *Significant difference between post-operative follow-up values.*



Graph 4a - Pre- and post- operative basal acidity (range and mean) of T.V + P group.



Graph 4b Pre- and post- operative pentagastrin stimulated gastric acidity (range and mean) of T.V + P group.



Graph 4c Pre- and post- operative basal and maximum gastric acidity in T. V + P group.

Insulin Test:-

Insulin test was done on 47 cases to evaluate completeness of vagotomy. 39 cases proved repeatedly to be negative. However 8 cases proved or turned to be positive.

In P.C.V. Group: 3 cases were positive 3-4 weeks after operation, 2 of them became negative and their ulcers healed at the 6th month of follow-up. Moreover , through the third is still positive, he is symptom-free and no ulcer recurrence could be detected in this case for 36 months following surgery.

In S.V. + P. Group: 3 cases. 2 were positive 3-4 weeks after the operation. One of them still have unhealed ulcer and the insulin is still positive. The second cases has recurrent ulcer. The third was negative during the first year after the operation and turned positive in the second year with no proved recurrence.

In T.V. + P.: 2 insulin tests were positive. One of them showed delayed healing for more than one year, received medical treatment with dietary regime and the ulcer healed in the second year , but the insulin test is still + ve. The second became - ve and the ulcer healed 6 months after the operation.

Fat In Stool:-

Table 6 a shows the 24 hour fat in stool of P.C.V. group. The pre-operative value ranged from 0-9 gm with a mean value of 4.I4 ± 2.65 gm. There were no significant changes during the subsequent three years of follow-up.

Table 6 b shows the 24 hour fat in stool of S.V.+P. group. The pre-operative value ranged from 0-6 gm with a mean value of 4.35 ± I.75 gm. A mildly significant increase ($P \leq 0.0I$) occured three to four weeks after the operation but no significant changes happened during the subsequent period of follow-up.

In table 6c, the pre-operative value of fat in stool in T.V. + P group ranged from 2.7 - 9.4 gm with a mean value of 5.56 ± I.82. A highly significant increase ($P \leq 0.00I$) occured 3-4 weeks after the operation with no significant changes during the subsequent period of follow-up .

Graph 5 shows the relation between the three groups.

Table (6a)

Pre and Post-Operative Fat in Stool in P.C.V Group.

	Pre	3-4W.	6m.	I Y.	2 Y.	3 Y.
I	4.9	-	6	8.0	6.8	6.0
2	4.0	6.0	-	6.4	6.0	6.0
3	4.0	5.0	-	4.0	4.0	--
4	4.0	3.6	2.3	4.0	4.2	3.9
5	2.0	4.0	2.4	3.2	3.2	3.0
6	0	2.4	--	3.4	3.0	3.0
7	0	3.0	--	--	--	5.8
8	4.0	5.3	4.0	2.9	--	3.0
9	2.6	3.4	3.0	--	--	--
IO	4.2	5.9	6.0	--	4.8	4.0
II	2.0	IO.0	I3.0	I3.4	3.7	4.2
I2	4.0	4.2	4.0	--	4.3	4.0
I3	8.0	--	--	2.0	2.0	3.0
I4	--	--	--	--	--	--
I5	5.0	6.0	--	--	--	--
I6	8.6	8.3	6.9	--	--	--
I7	9.0	IO.2	IO.2	--	--	--
Range	O- 9. O	2.4-IO.2	2.3-I3.0	2.0-I3.4	2.0-6.8	3.0-6.0
Mean	4.I4	5.52	5.78	5.25	4.2	4.I7
S.D.±	2.65	2.46	3.5I	3.57	I.4I	I.22
P_I		O.I				
P_2			O.I	O.I	O.I	O.I

P_I : *Significant difference between pre-operative and 3-4 W. post-operative values.*

P_2 : *Significant difference between post-operative follow-up values.*

Table (6b)

Pre and Post-operative Fat in Stool in S.V+P Group

	Pre	3-4W.	6m.	I Y.	2 Y.	3 Y.
I	3.8	6.2	8	-	-	I4.3
2	6.0	I0.0	-	I5	I7.0	8.3
3	4.0	--	I3	-	8.0	I0
4	4.0	--	5.5	7.0	--	9.0
5	3.8	--	7.4	--	8.8	-
6	4.8	--	6.8	--	5.3	-
7	8	9.7	--	7.8	II	-
8	4.0	7.4	--	--	7.0	-
9	3.6	8.3	6.6	7.6	--	-
I0	4.8	5.6	5.6	5.3	5.0	-
II	--	--	--	--	--	-
I2	3.8	8.9	8.9	9.4	7.3	-
I3	4.3	9.0	9.0	6	8.7	-
I4	6.0	I0.7	I0.7	-	-	-
I5	0	5.2	5.2	4	-	-
Range	0-6.0	5.6-I0.7	5.2-I0.7	5.3-I5	5.0-I7	9 -I4.3
Mean	4.35	8.I0	7.88	7.69	8.68	I0.40
S.D±	I.75	I.92	2.39	3.37	3.62	2.69
P_I		0.0I				
P_2			0.I	0.I	0.I	0.I

P_I : *Significant difference between pre-operative and 3-4 W. post-operative values.*

P_2 : *Significant difference between post-operative follow-up values.*

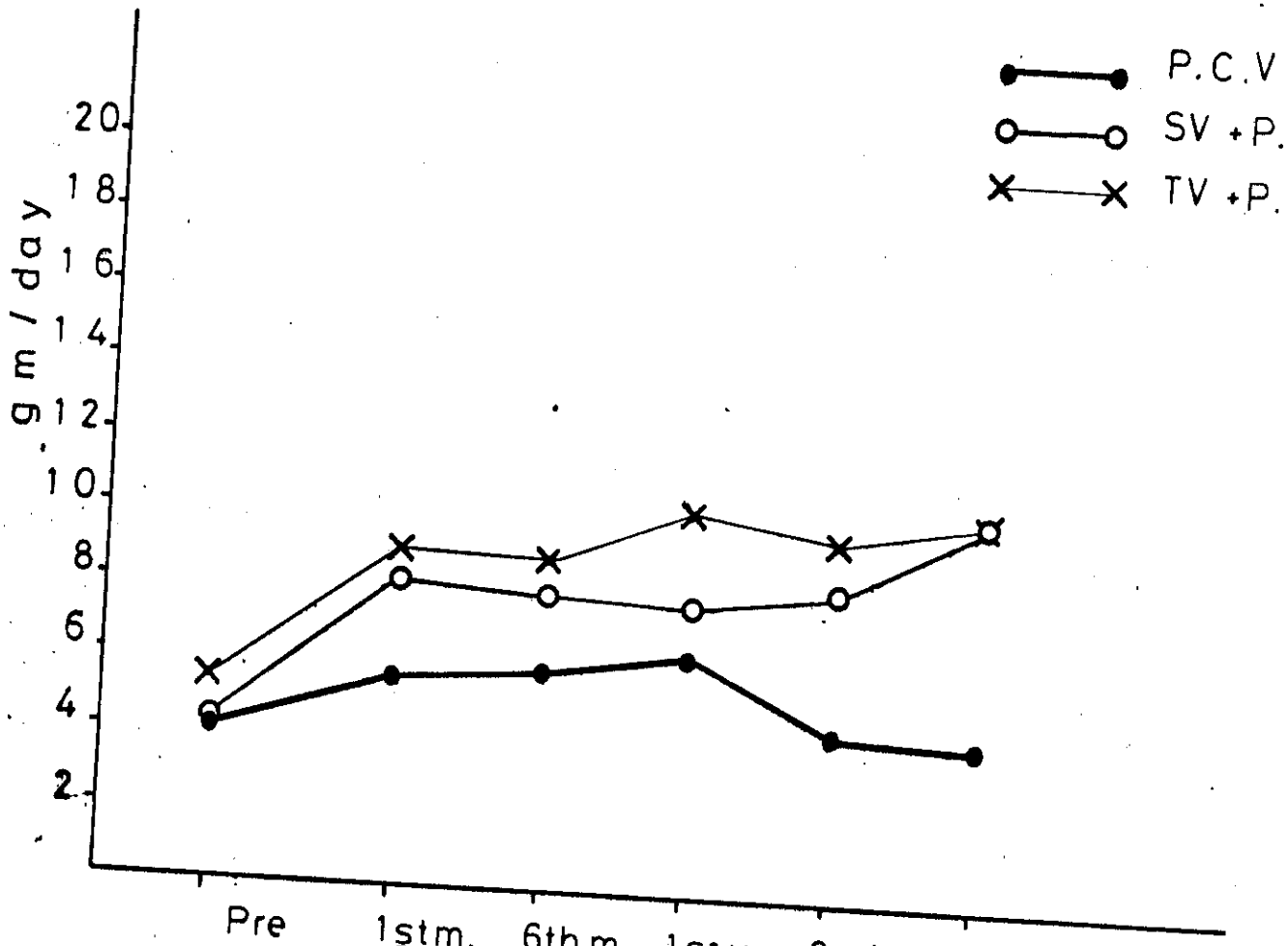
Table (6c)

Pre and Post-operative Fat in Stool in T.V+P

	Pre	3-4W.	6m.	I Y.	2 Y.	3 Y.
I	6.4	I3.8	II	I2	I2	I3.4
2	8.2	II.7	I0.2	II.2	II.2	9.4
3	6.3	I0.5	I2	8.3	8.3	I.0
4	4.6	6.3	--	--	--	--
5	8.0	I2.3	--	I3.7	II	II.4
6	4.I2	8.0	II.3	7.5	II.4	--
7	4.I2	I0	I0.I	8.0	8.0	9.0
8	4.0	8.0	8	-	9.0	—
9	2.7	8.0	6	-	-	--
I0	3.8	7.3	7.4	-	7.5	--
II	4.3	6.3	6.9	--	9.0	--
I2	6.9	7.0	--	--	8.0	--
I3	5.3	8.3	7.4	--	--	--
I4	6.0	9.6	9.3	--	--	--
I5	9.4	9.6	I0.2	I0	--	--
I6	4.3	6.8	6.8	--	--	--
I7	6.0	9.4	--	--	--	--
Range	2.7-9.4	6.3-I3.8	6-II.3	7.5-I3.7	7.5-I2	9-I3.4
Mean	5.56	8.99	8.97	I0.I0	9.44	I0.64
S.D.±	I.82	2.I7	I.97	2.32	I.58	I.72
P_I <		0.00I				
P_2 <			0.I	0.I	0.I	0.I

P_I : *Significant difference between pre-operative and 3-4 W. post-operative values.*

P_2 : *Significant different between post-operative follow-up values.*



Graph 5 Pre- and post-operative fat in stool in all groups.

Blood Sugar Curve:-

Table 7a and graph 6a demonstrate that the fasting blood sugar levels & the glucose tolerance curves do not show changes of significant value between the pre-operative and post-operative blood sugar levels in P.C.V. group.

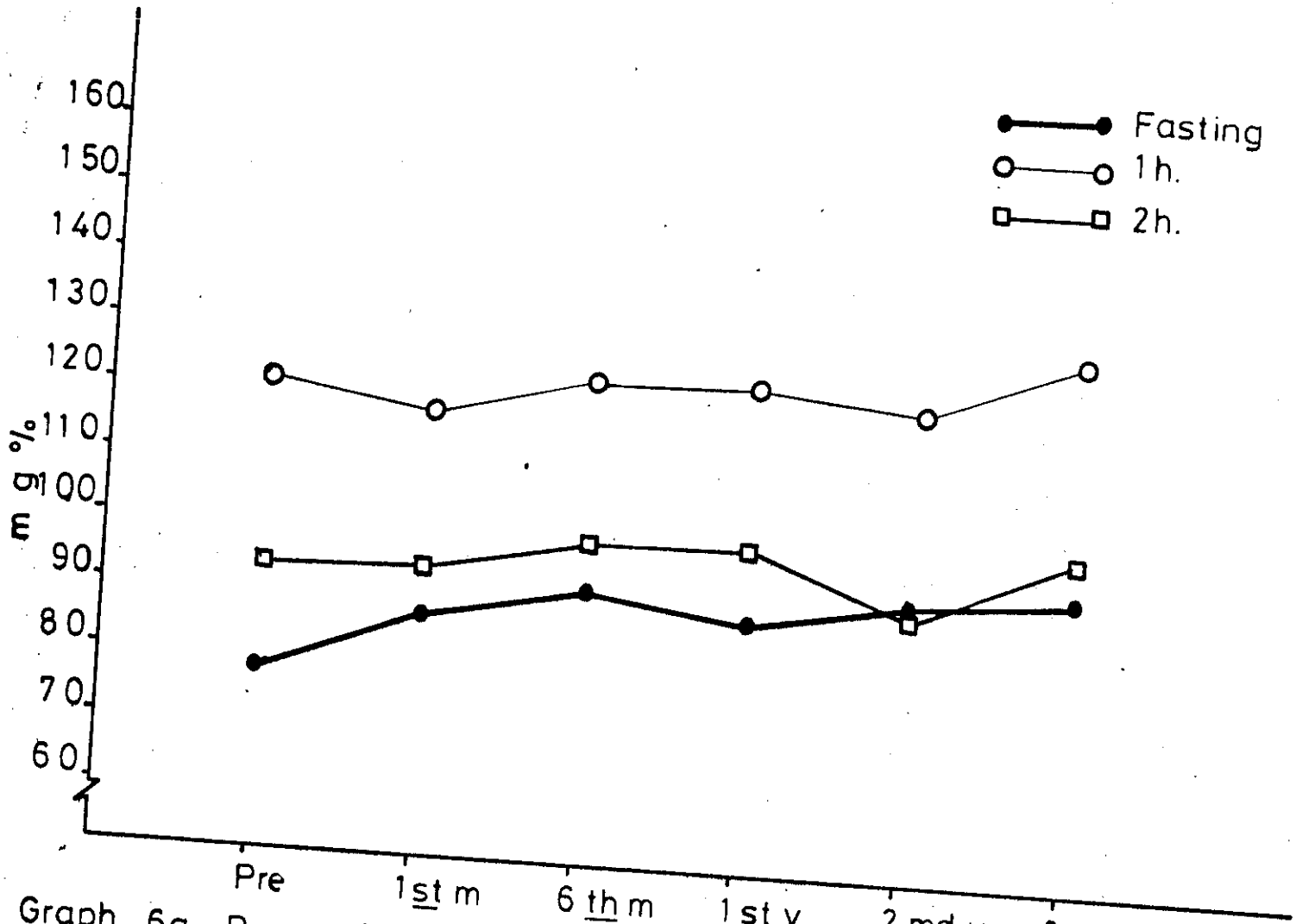
Table 7b and graph 6b show no significant changes in fasting blood glucose after S.V. + P operation; meanwhile, there was a slighly significant ($P < 0.05$) increase in blood sugar values at one hour after oral glucose tolerance test in the 2 years following the operation.

Table 7c and graph 6c show also no significant increase in fasting blood glucose after T.V. + P , but there was a significant rise in the one hour value after glucose tolerance test during the three years following the operation.

Table(7a): Glucose Tolerance Test Pre and Post-operatively in PCV Group

	Pre	3-4W.		6m.			I Y.			2 Y.			3 Y.	
I	9I	I36	99	--	--	--	--	--	--	93	I40	98	90	I25	I00	98	I30	I00
2	88	I2I	I06	99	I06	88	--	--	--	90	I30	88	98	I30	88	95	I30	I00
3	90	I35	II0	93	I40	I00	--	--	--	95	I30	I00	--	--	--	95	I30	I00
4	I06	I55	I06	80	I47	II5	85	I50	I20	85	I35	I00	99	I60	85	93	I55	II0
5	78	II8	88	84	I05	99	88	II0	90	75	II0	85	88	108	95	--	--	--
6	92	I2I	I00	84	I05	99	--	--	--	86	I50	I32	98	I08	85	90	I25	85
7	99	I25	I00	I00	I30	II0	--	--	--	--	--	--	--	--	--	I02	I38	I07
8	84	I29	I00	88	I05	93	I03	I30	I20	87	II0	I00	--	--	--	97	I20	I00
9	84	II0	88	72	I06	80	83	II0	80	85	I20	95	--	--	--	--	--	--
IO	84	II0	90	84	I20	82	80	I20	80	95	I30	I00	--	--	--	90	I20	I00
II	88	I29	79	84	I05	87	90	I30	I00	90	I30	I03	80	II3	85	93	I30	95
I2	77	II8	87	77	I20	85	77	I28	85	88	I03	90	--	--	--	--	--	--
I3	77	I20	85	94	I24	I0I	--	--	--	85	I03	88	85	I03	95	--	--	--
I4	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I5	75	I00	74	80	I2I	87	-	-	-	-	-	-	-	-	-	-	-	-
I6	75	II8	87	85	II5	85	I07	II9	97	-	-	-	-	-	-	-	-	-
I7	I07	II2	96	90	II5	I00	II5	II2	II7	-	-	-	-	-	-	-	-	-
Range	75-I07	I00-I36	74-II0	72-I00	I05-I47	82-II5	77-II5	II0-I50	80-I20	75-97	I03-I50	88-I32	80-98	I03-I60	85-I00	90-I02	I20-I55	85-II0
Mean	87.I8	I22,2	93.56	86.27	II7.6	94.0	92.0	I24.3	98.7	88.66	I24.4	98.3	9I.I	I2I.0	90.4	94.8	I30.9	99.7
S.D.	±IO.I7	I2.87	IO.I5	7.85	I3.37	IO.36	I3.20	I2.24	I6.6I	6.08	I5.03	I2.20	7.40	I9.76	6.16	3.86	IO.65	7.05
P_1 <				0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I
P_2 <							0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I

P_1 : Significant change from pre-operative blood sugar curve. *P_2: Significant change between post-operative values.*



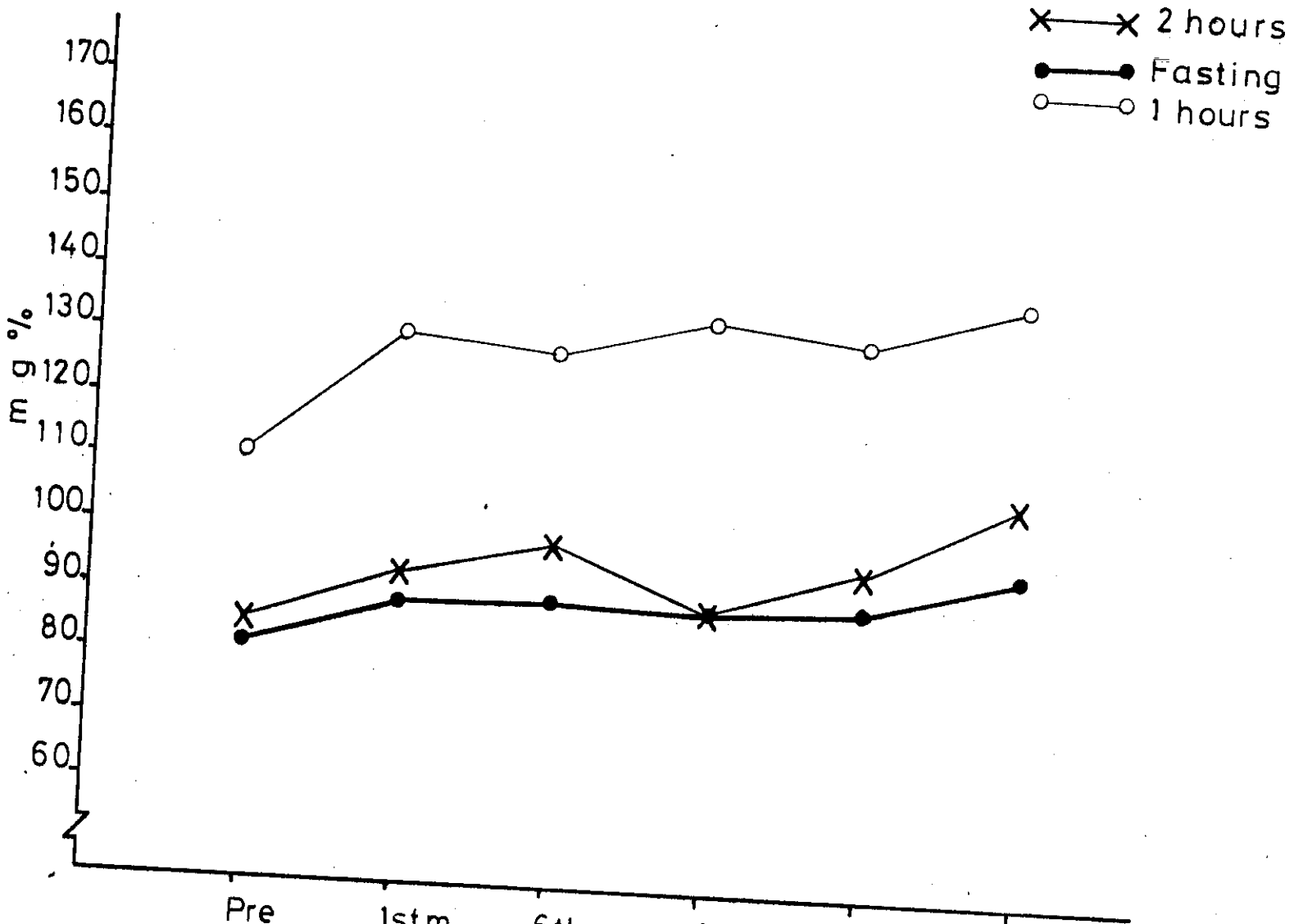
Graph 6a Pre- and posterative Blood glucose in P.C.V group (Fasting, 1 h, 2 h.)

Table(7b):Glucose Tolerance Test Pre and Post-operatively in S.V+P Group

	Pre	3-4W.		6m.			I Y.			2 Y.			3 Y.		
I	77	IOI	84	98	I36	IO8	83	I30	II5	--	--	--	-	--	--	--	--	--
2	84	II2	80	--	--	--	89	I30	IOO	--	--	--	99	I30	IO2	90	I25	IO4
3	84	I28	87	96	I40	I28	IOI	I49	I22	--	--	--	IOO	I50	I20	IOO	I50	I20
4	84	I28	87	IOO	I20	IOO	IOI	I28	94	80	I25	90	8I	I28	85	--	--	--
5	84	IOI	80	88	I20	95	80	I30	75	--	--	--	95	I30	90	98	I30	96
6	90	II6	84	95	I30	85	99	I28	IO6	--	--	--	98	I30	IOO	--	--	--
7	8I	IO5	77	85	I20	90	--	--	--	98	I30	84	88	I20	88	--	--	--
8	77	IOO	72	7I	II8	8I	--	--	--	7I	I20	88	80	I20	85	--	--	--
9	90	II0	95	93	I37	97	95	I20	97	--	--	--	--	--	--	--	--	--
IO	88	I30	IOO	IOO	I50	93	90	I47	95	85	I50	93	85	I44	95	--	--	--
II	83	I47	76	80	I70	80	--	--	--	--	--	--	--	--	--	--	--	--
I2	88	I30	95	90	I35	99	88	I35	IOO	88	I48	89	90	I38	98	--	--	--
I3	79	96	83	80	II8	85	85	I23	83	--	--	--	--	--	--	--	--	--
I4	89	IO3	83	IOO	I30	90	86	I38	IOI	--	--	--	--	--	--	--	--	--
I5	68	IOO	75	70	II3	80	80	II0	83	85	I33	95	--	--	--	--	--	--
Range	68-90	96-I47	72-IOO	70-IOO	II8-I70	80-I28	80-IOI	II0-I49	83-II5	7I-98	I20-I50	84-95	80-IOO	I20-I50	85-I20	90-IOO	I30-I50	96-I20
Mean	83.07	II3.8	83.87	89.0	I3I.2	93.6	89.75	I30.6	98.08	84.5	I34.3	89.8	90.67	I32.2	95.89	96	I38.3	I06.7
S.D.±	6.0I	I5.28	7.96	IO.4I	I5.36	I2.94	7.64	IO.83	I4.38	8.9I	I2.2I	3.86	7.7I	IO.I2	II.04	5.29	IO.4	I2.22
P_I <			0.I	0.05	0.I	0.I	0.05	0.I	0.I	0.05	0.I	0.I	0.05	0.I	0.I	0.05	0.I	
P_2 <						0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	

P_I: Significant change from pre-operative blood sugar curve.

P_2: Significant change between post-operative values.



Graph 6b Pre_ and post_ operative Blood glucose in S.V+ P group (Fasting , 1h , 2h).

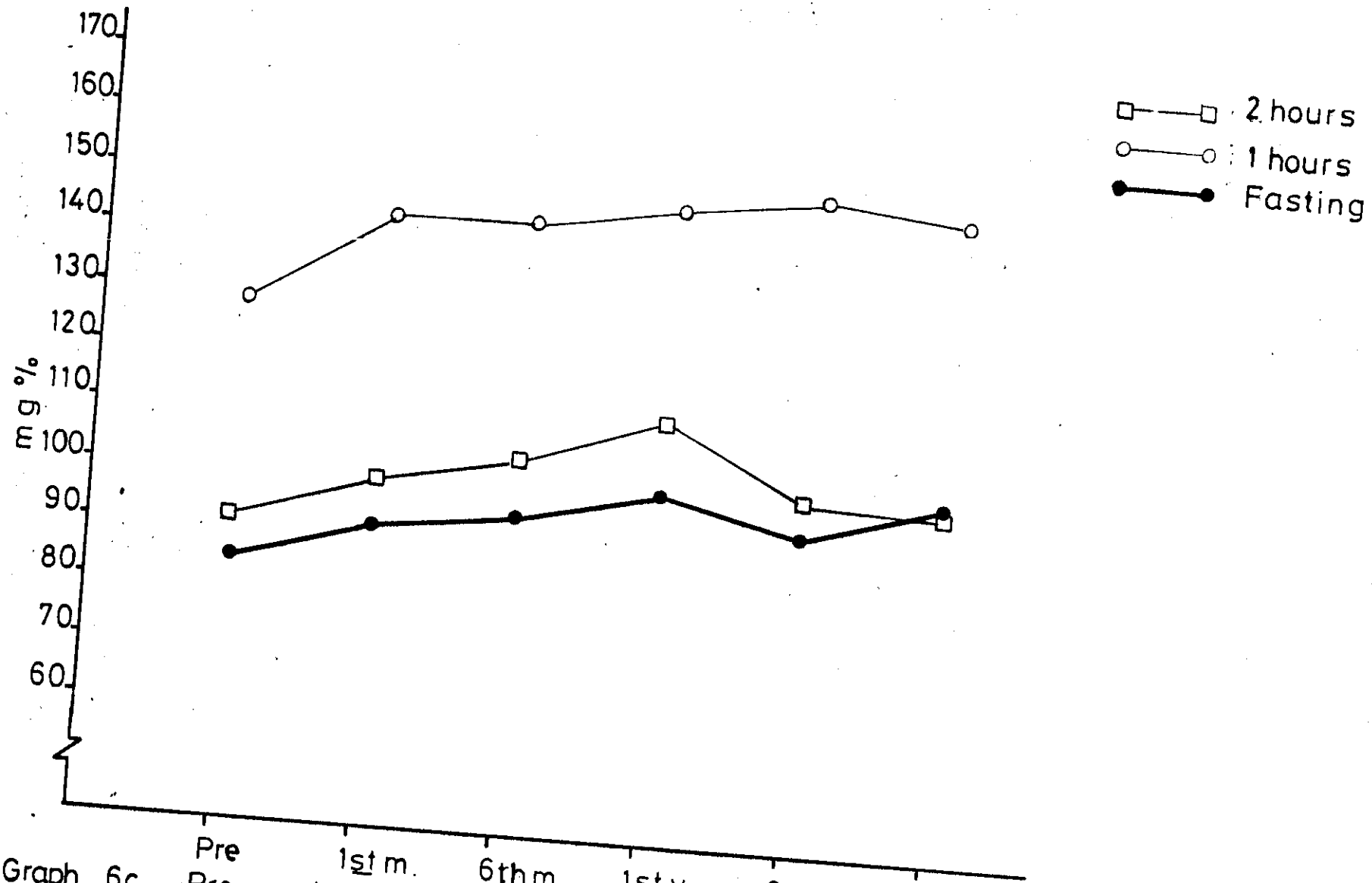
Table (7c)

Blood Sugar Curve Pre and Post-operative in T.Y+P. Group

	Pre	3.4W.	6m.	I Y.					2 Y.				3 Y.	
I	86	I32	II7	92	I40	IIO	90	I38	II3	I05	I60	II8	95	I30	I03	I00	I35	IOI
2	83	I30	II5	90	I55	II8	--	--	--	95	I40	I20	99	I35	I00	--	--	--
3	95	I02	99	I00	I39	I00	I00	I37	IIO	99	I20	98	99	I40	I00	I0I	I45	IOI
4	82	I33	I03	93	I65	I04	--	--	--	--	--	--	--	--	--	--	--	--
5	89	I30	90	II0	I48	IIO	I00	I35	I00	I00	I40	II0	98	I30	99	88	I30	I00
6	90	I66	79	I00	I67	IIO	98	I68	I0I	--	--	--	95	I60	I00	I09	I70	I00
7	I00	I69	79	8I	I68	98	I0I	I77	98	I00	I75	I08	I03	I80	I03	II0	I67	98
8	7I	I52	94	75	I73	I00	79	I6I	76	90	I60	I00	88	I55	I0I	--	--	--
9	88	II0	85	I00	I38	9I	I00	I26	96	--	--	--	--	--	--	--	--	--
I0	78	II5	8I	I00	I28	I07	I0I	I35	I0I	I00	I38	I00	--	--	--	--	--	--
II	85	II9	8I	90	I35	87	90	I60	90	--	--	--	--	--	--	--	--	--
I2	83	II0	90	83	I24	89	85	I30	90	90	I50	98	96	I74	I0I	--	--	--
I3	I00	I30	I00	II0	I47	I00	II0	I45	I00	--	--	--	90	I65	93	--	--	--
I4	83	I20	I07	83	I37	79	85	I3I	I00	95	I35	I00	--	--	--	--	--	--
I5	78	I2I	90	88	I36	95	85	I38	I07	83	I60	II0	--	--	--	--	--	--
I6	79	I07	86	I00	I22	96	I0I	I38	99	--	--	--	--	--	--	--	--	--
I7	79	I26	83	80	I36	78	--	--	--	--	--	--	--	--	--	--	--	--
Range	7I-I00	I02-I69	79-II7	75-II0	I22-I68	79-II8	79-II0	I26-I77	76-II3	83-I05	I35-I75	98-I20	90-I03	I30-I80	93-I03	88-II0	I30-I70	98-I0I
Mean	85.73	I27.9	92.9	92.4	I44.6	98.4	94.6	I44.2	98.6	95.7	I47.8	I06.2	95.8	I52.I	I00	I0I.6	I49.4	I00
S.D.	7.85	I9.2	I2.I4	I0.3I	I5.8I	II.I4	8.86	I5.73	9.I6	6.49	I6.I4	8.24	4.64	I9.07	2.95	8.84	I8.28	I.2
P_1 <				0.I	0.05	0.I	0.I	0.05	0.I	0.I	0.05	0.I	0.I	0.05	0.I	0.I	0.05	0.I
P_2 <							0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I	0.I

P_1 *Significant change from pre-operative blood sugar curve.*

P_2 *Significant change between post-operative values.*



Graph 6c Pre- and post- operative Blood glucose in T.V + P group (Fasting, after 1h, 2h,).

Barium Meal Examination:-

Pre-operative barium meal: Barium meal was done for 45 cases by different techniques: 45 conventional barium meal, I6 pharmacoradiological barium meal, I9 double contrast barium meal. Fig.(II to 20).

Table (8)

Pre-operative barium meal

	Niche	Def. only	Def.&niche	Free
45	IO	I5	9	II
	22.24%	33.33%	20.0 %	24.44%

Pre-operative barium meal using either the conventional barium meal or other modifications (pharmacoradiological + D.C.) could demonstrate an ulcer and/or deformity in 76%.

Pre-operative emptying time: The gastric emptying time was done on 26 cases. It ranged from I.I5-4.I5 h.with a mean time of 2.I2 ± 0.57 hours.

Post-operative Barium Meal & Emptying Time:-

P.C.V. Gr.:During the first three years of follow-up,there was no evidence of recurrent ulceration in all post-operative cases.

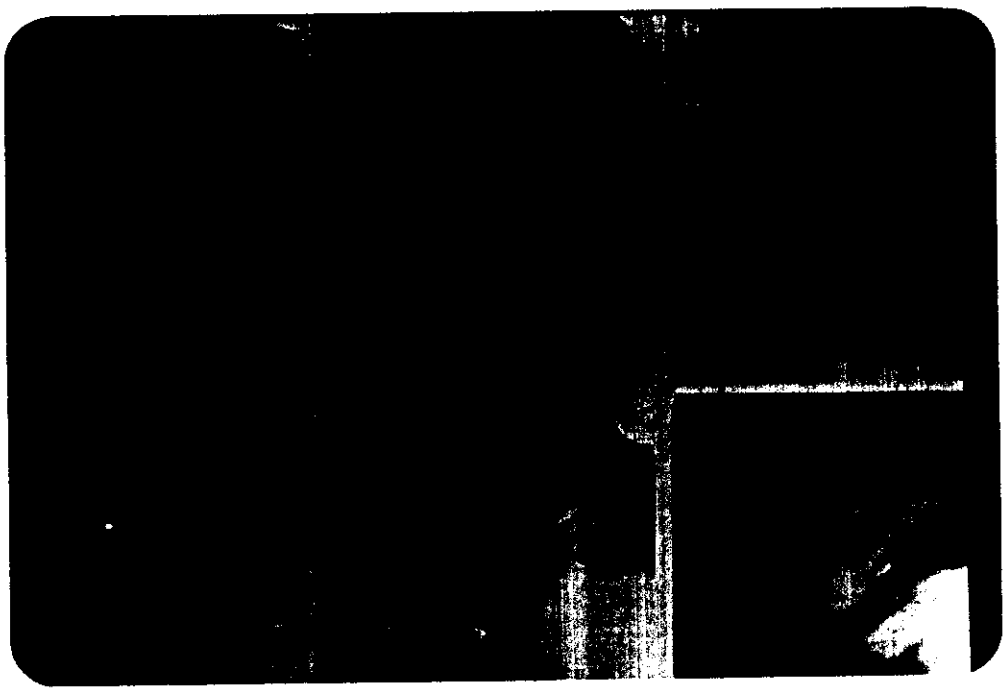


Fig.(II):Serial conventional duodenography of anterior duodenal ulcer.

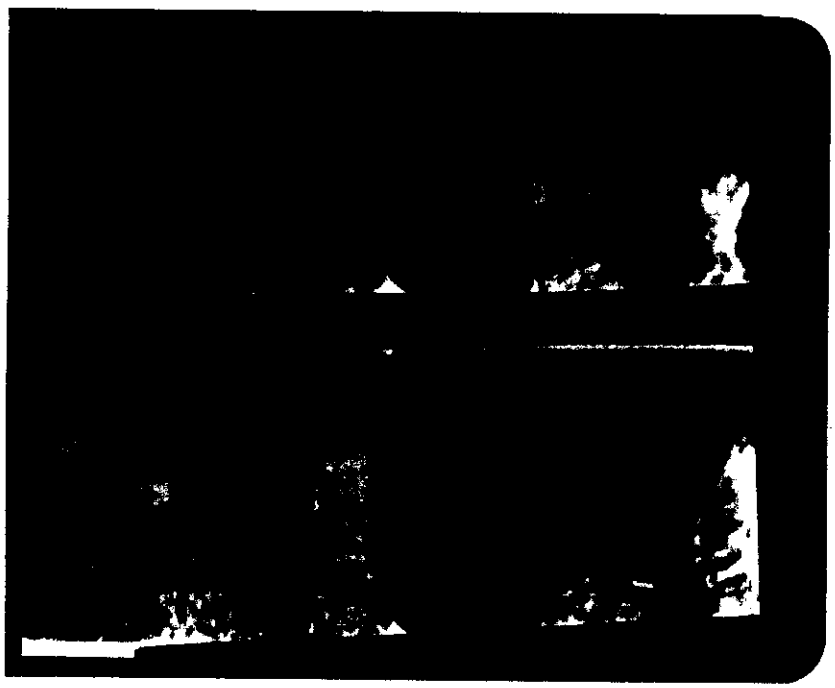


Fig.(I2):Serial Double contrast duodenography of anterior duodenal ulcer.

Fig.(I3):Conventional duodenography of inferior duodenal ulcer.

Fig.(I4):Double contrast radiography of inferior duodenal ulcer.

Fig.(I5):Serial conventional duodenography of superior duodenal ulcer.

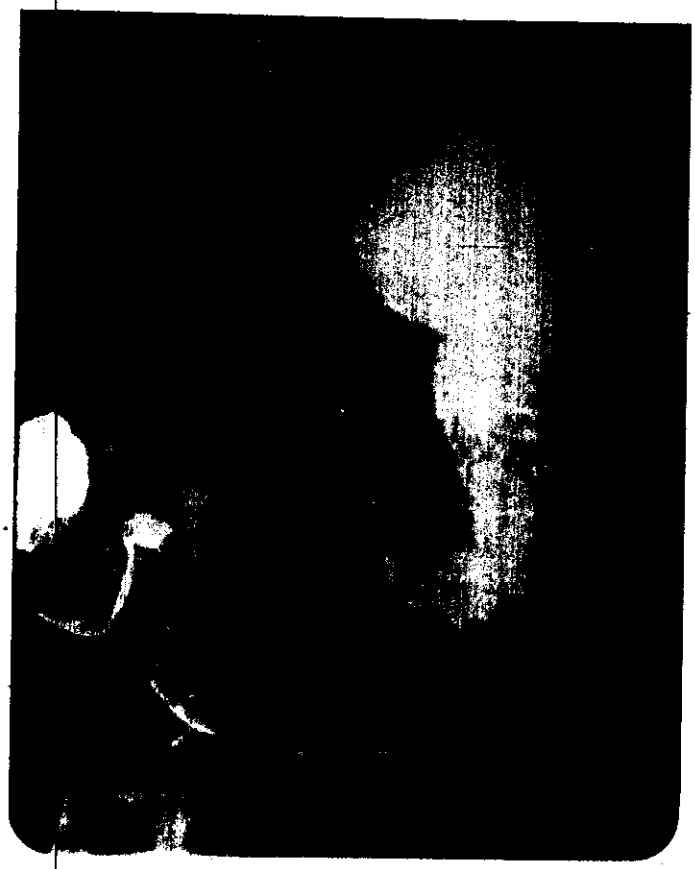


Fig.(I6):Double contrast barium meal showing superior duodenal ulcer.

Fig.(I7):Barium meal show duodenal cap deformity with ulcer niche.

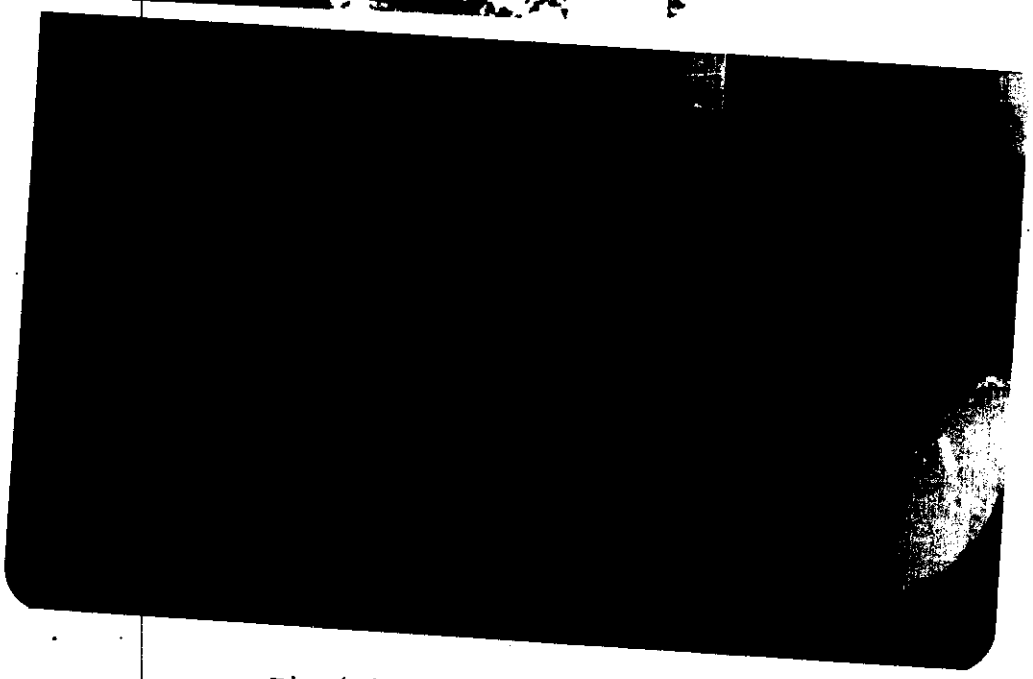


Fig.(I8):Serial duodenography show deformed duodenal cap and ulcer niche.

Fig.(I9):Barium show deformed duodenal cap.

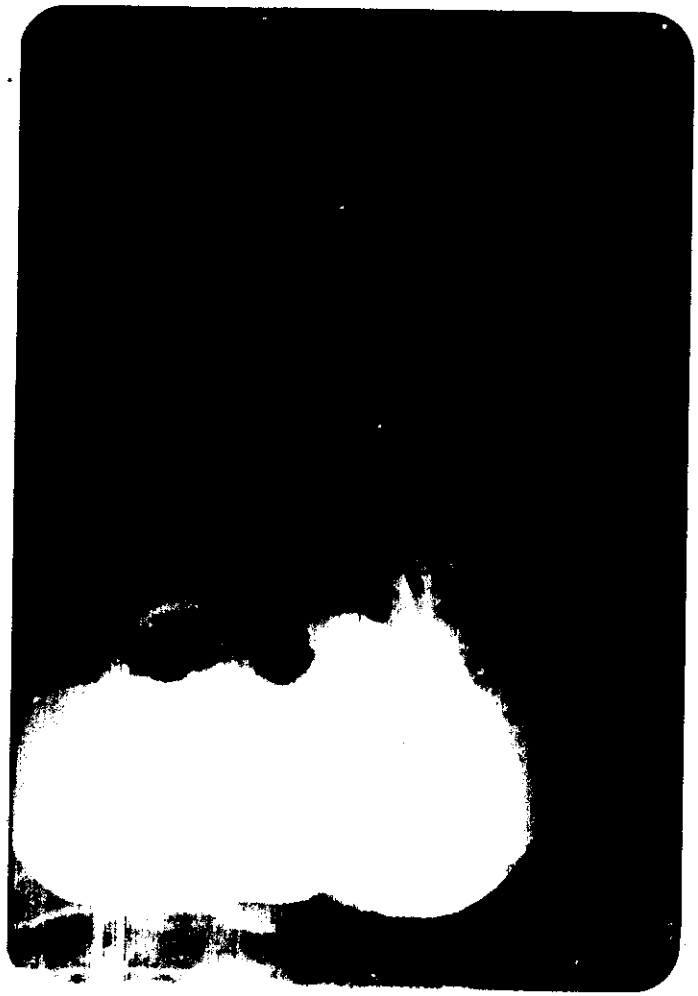


Fig.(20):Barium meal show deformed duodenal cap and ulcer niche.

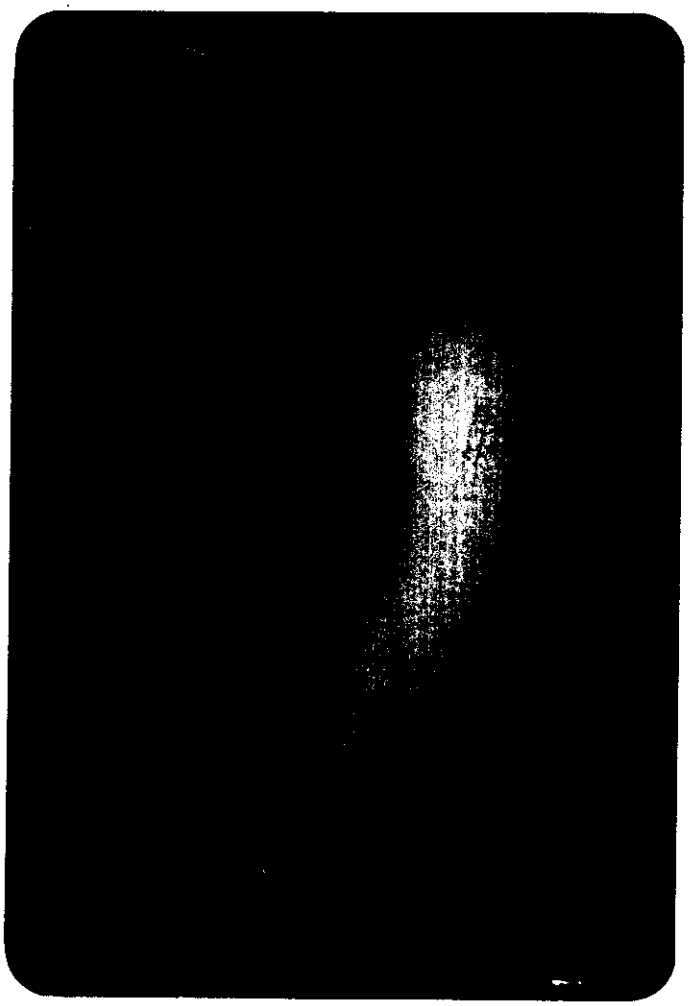


Fig.(2I,22,23,24): Show barium evacuation rate after P.C.V.

Fig.(2I):After I5min.

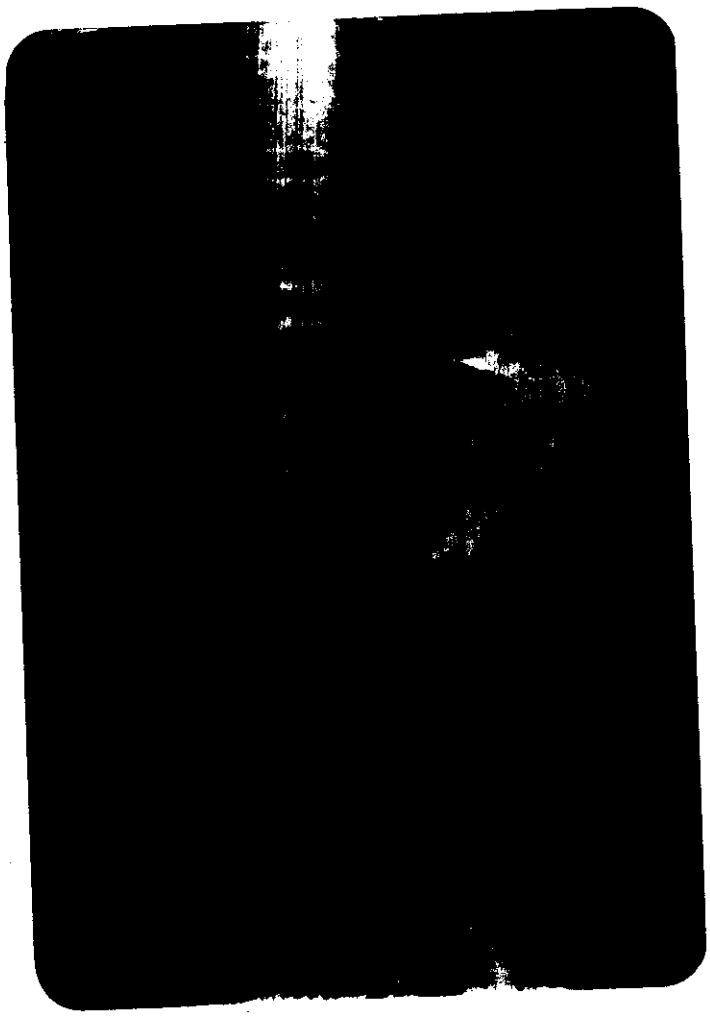


Fig.(22):After 45 min.

Fig.(23):After 75min.

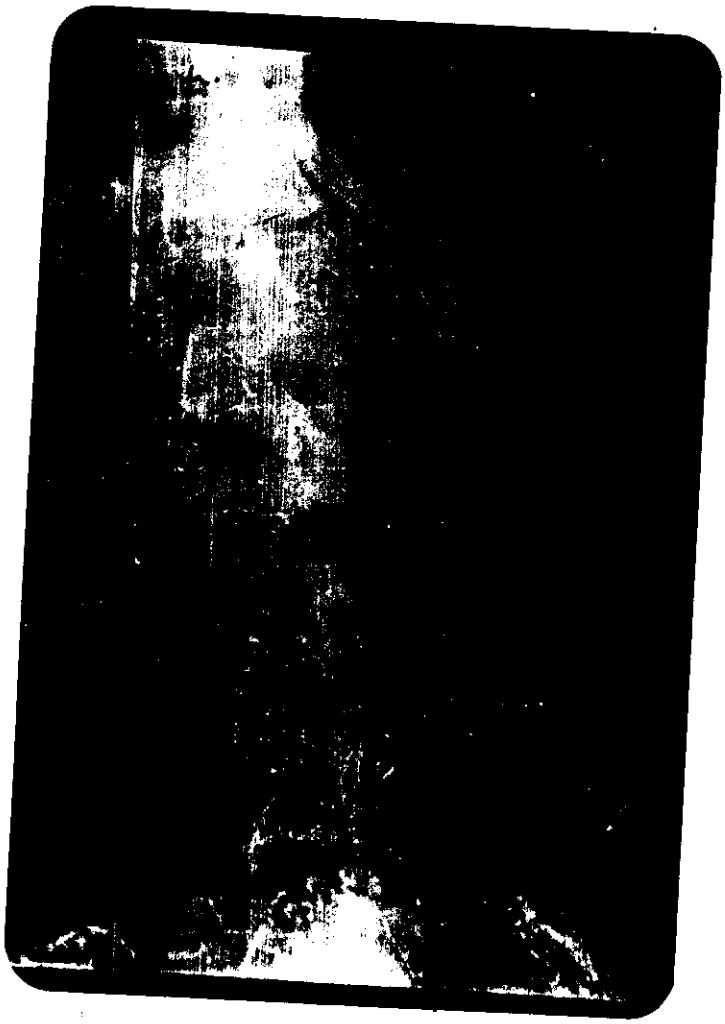


Fig.(24):After
105 min.

Gastric emptying time was done on twelve cases . It ranged from half an hour to 4 hours with a mean time of 2.04 ± 0.94 hours. The mean percentage of reduction in time from the pre-operative value was 3.77%. So the gastric emptying time became slightly but not significantly faster than the pre-operative value. Fig.(2I to 24).

One case only shows delayed post-operative evacuation rate, which exceededs I8 hours with gastric atony.

S.V. + P.:Radiology showed no evidence of ulceration except in two cases which were false positive and in 2 cases which were false negative. The distortion of pylorus due to pyloroplasty with pseudodiverticulae within the gastroduodenal region made it difficult to determine if a persistent deformity of duodenal bulb is due to active ulceration or is simply the result of surgical deformity. Fig.(25 to 37).

Gastric emptying time was done on IO cases which revealed range of 0.45-3.45 hours with a mean of I.96+0.78 hours. The mean percentage of reduction from pre-operative value was equal to 7.5%. This reduction was also insignificant .Fig. (26 to 29).

One case has developed gastric retention and gastrojejunostomy was done as drainage operation at the end of the first year.

Fig.(25):False negative barium meal after S.V. + P.

Fig.(26,27,28,29): Show barium evacuation rate after S.V. + P.

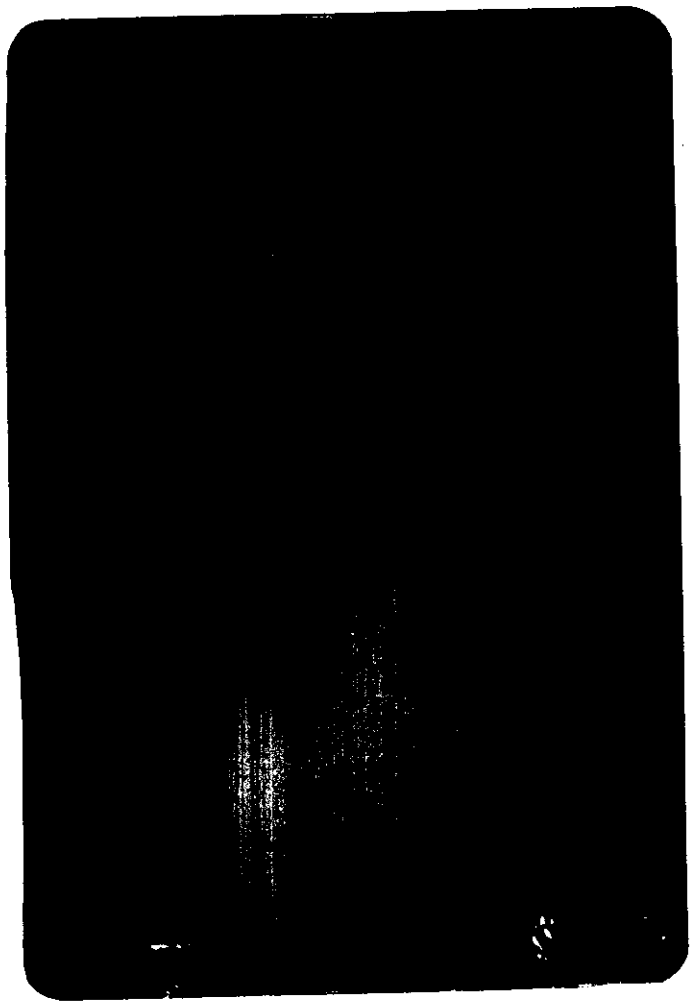


Fig.(26):After I5min.

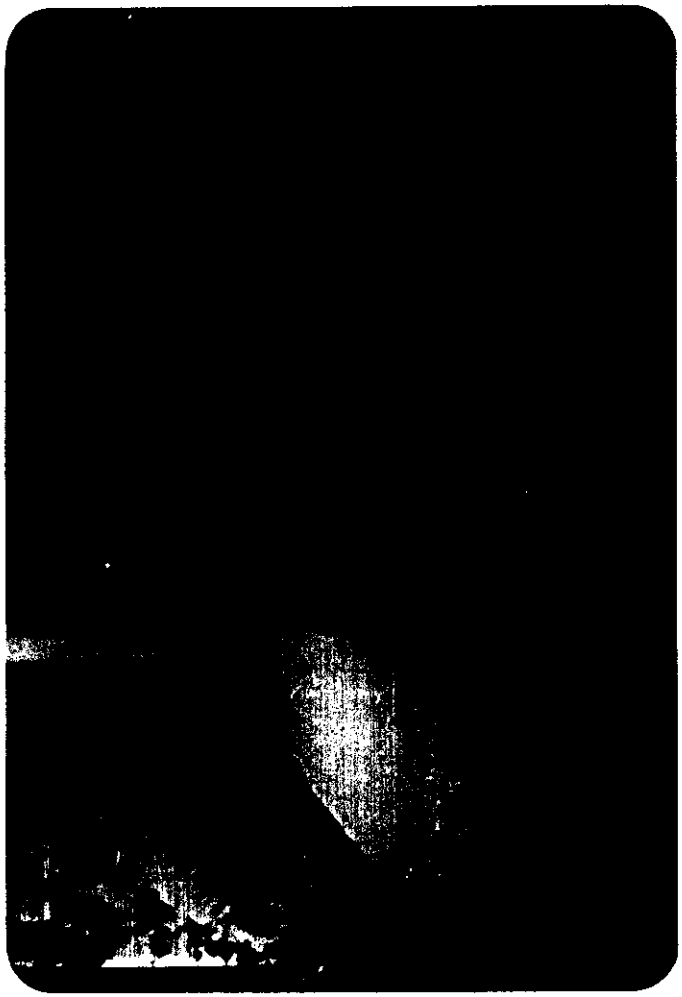


Fig.(27):After 75 min.

Fig.(28):After I35 min.

Fig.(29):After I65 min.

Fig.(30):False positive barium meal after.
T.V. + P.

Fig.(3I):Post-operative D.U. after T.V. + P.

Fig.(32,33,34,35): Show barium evacuation rate after T.V.+P.

Fig.(32): 15 min.

Fig.(33): 45 min.

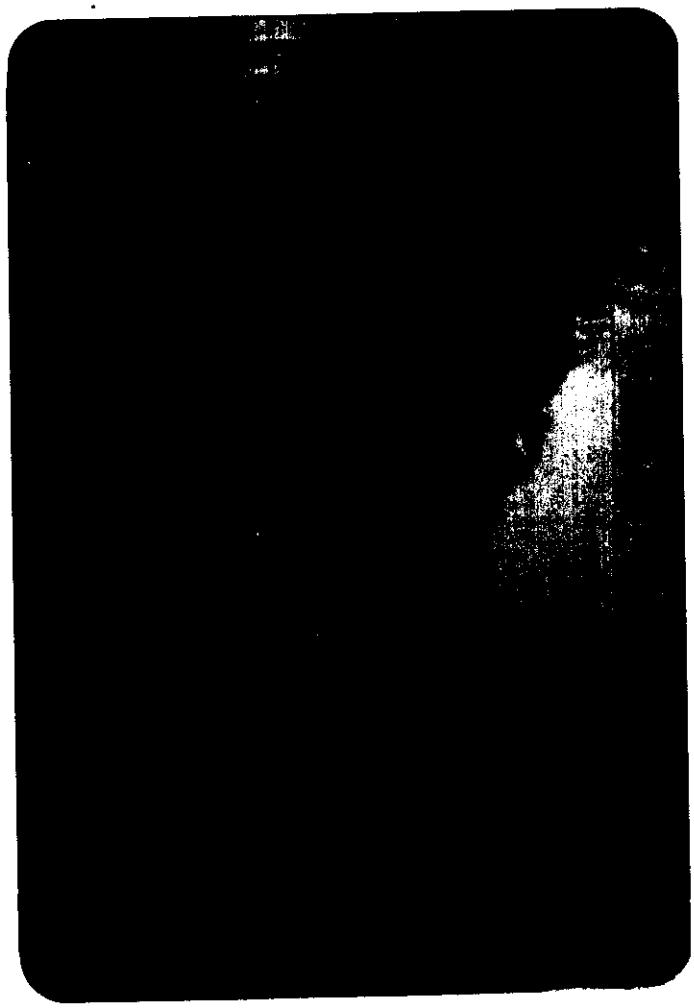


Fig.(34):After 75 min.

Fig.(35):After 105min.

T.V. + P: No ulcer could be seen by post-operative X-Ray except in one case showed ulcer niche.Fig.(30,3I & 36).

Gastric emptying time has been done on II cases. It ranged from 0.5 - 2.95 hours with a mean time of I.88±0.88 hours. The mean reduction from the pre-operative value was I2.26% which is non significant.Fig.(32 to 35).

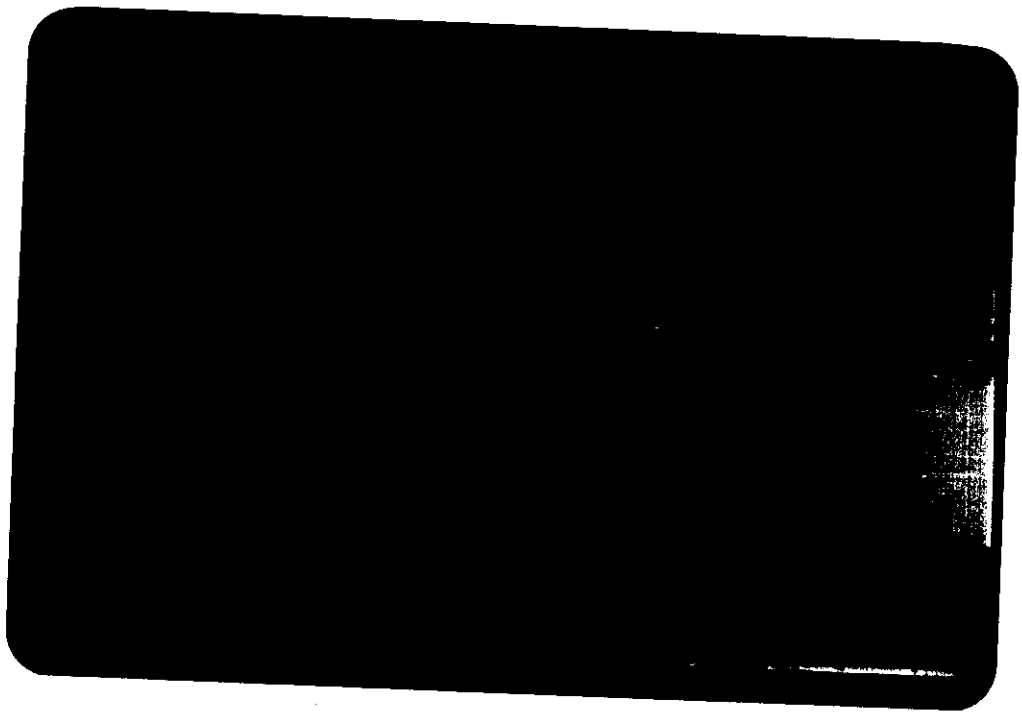


Fig.(36):Barium meal after T.V.+P. showing deformed pyloroduodenal region.

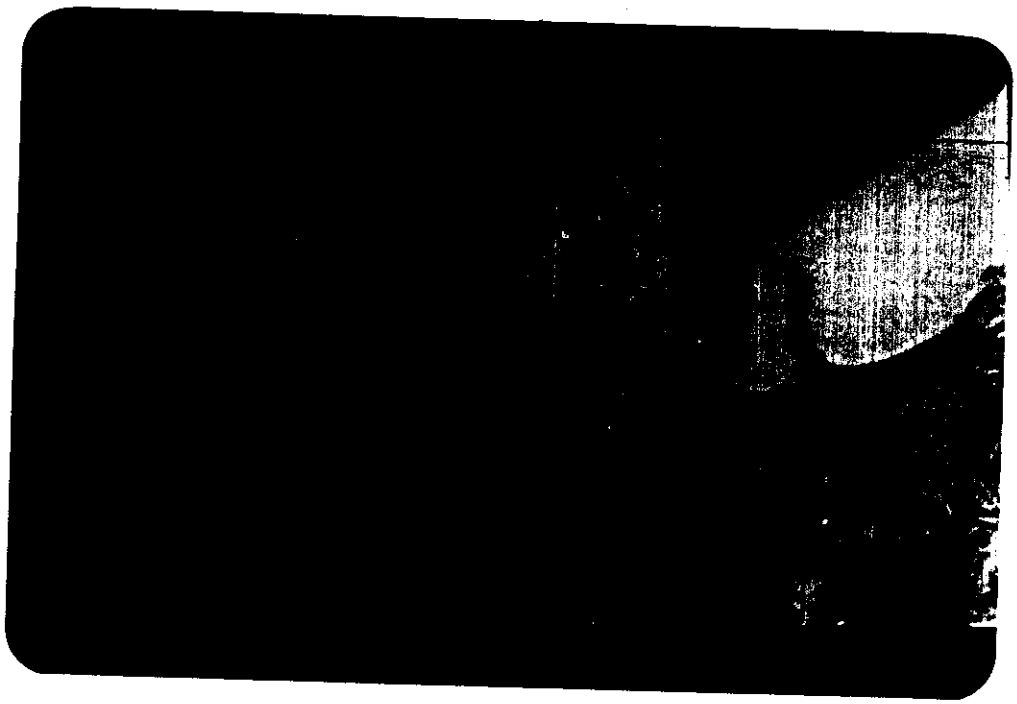


Fig.(37):Barium meal after S.V.+P.showing deformed pyloroduodenal region.

Endoscopic Results:-

46 cases were diagnosed endoscopically as an active duodenal ulcer . In 43 of them , the ulcer was directly seen and its site was described as anterior in 30 cases, posterior in IO cases and as anterior and posterior (Kissing ulcer) in 3 cases . The remaining three were diagnosed by circumstantial evidence of the presence of deformed duodenal cap.

Two cases were found to be free by endoscopy and in another, the endoscopy did failed .

Endoscopy done post-operatively to assess the healing of the ulcer , the antral motility and the pyloric shape, site and motility , the cardio-oesophageal junction and the gastric mucosa revealed:-

In P.C.V. Group:- At the end of the first month, endoscopy was done for I5 patients. IO of them showed healing and 5 still showed active ulcers.
By the end of 6 months: 4 of the 5 cases showing active ulcers became healed. Fig.(38 to 43).
By the end of the first year the 5th case showed endoscopic evidence of complete healing.

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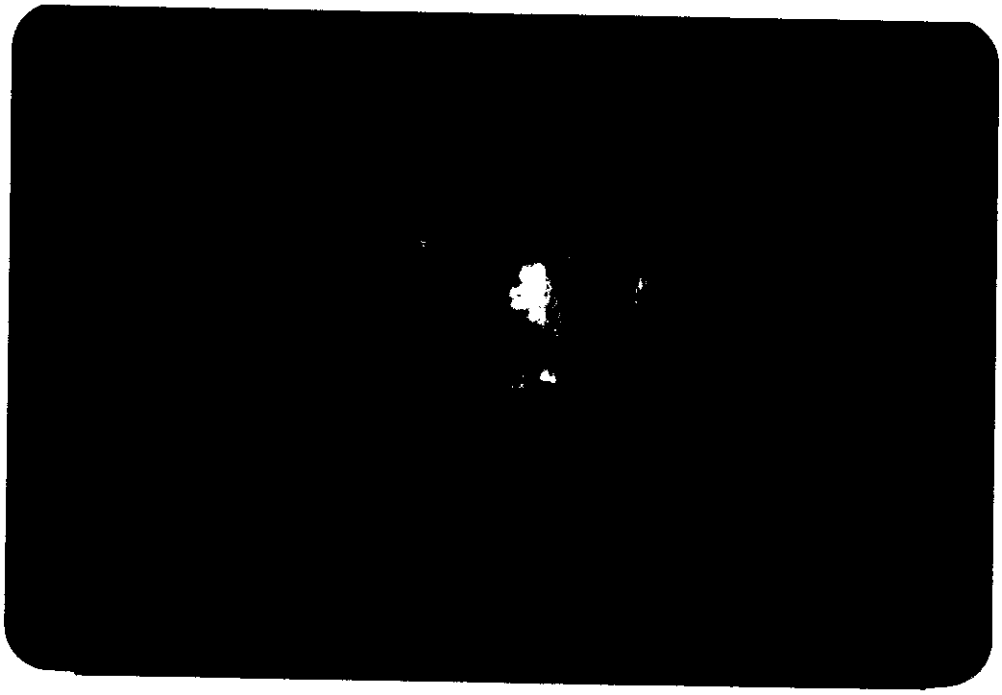

Fig.(38):Endoscopic picture of huge pre-operative D.U.

Fig.(39):Endoscopic picture after P.C.V. showing incomplete healing of the ulcer after I m.

Fig.(40):Endoscopic picture showing healing of the ulcer after 6m.

Fig.(41):Endoscopic picture of the same case showing intact antro-pyloric movement.

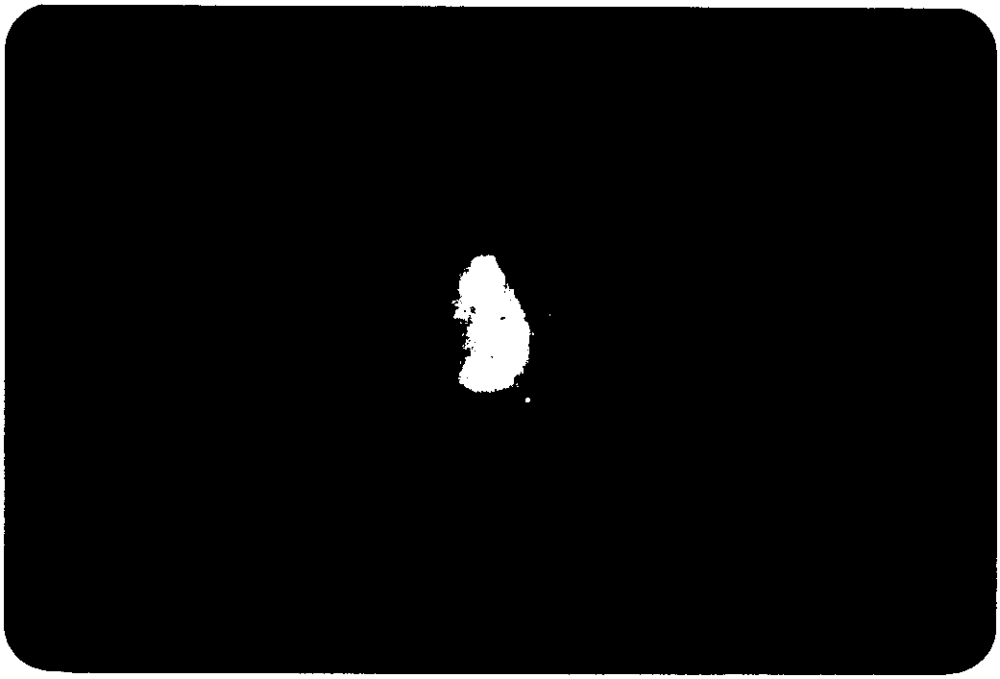

Fig.(42):Endoscopic picture of positive pre-operative duodenal ulcer.

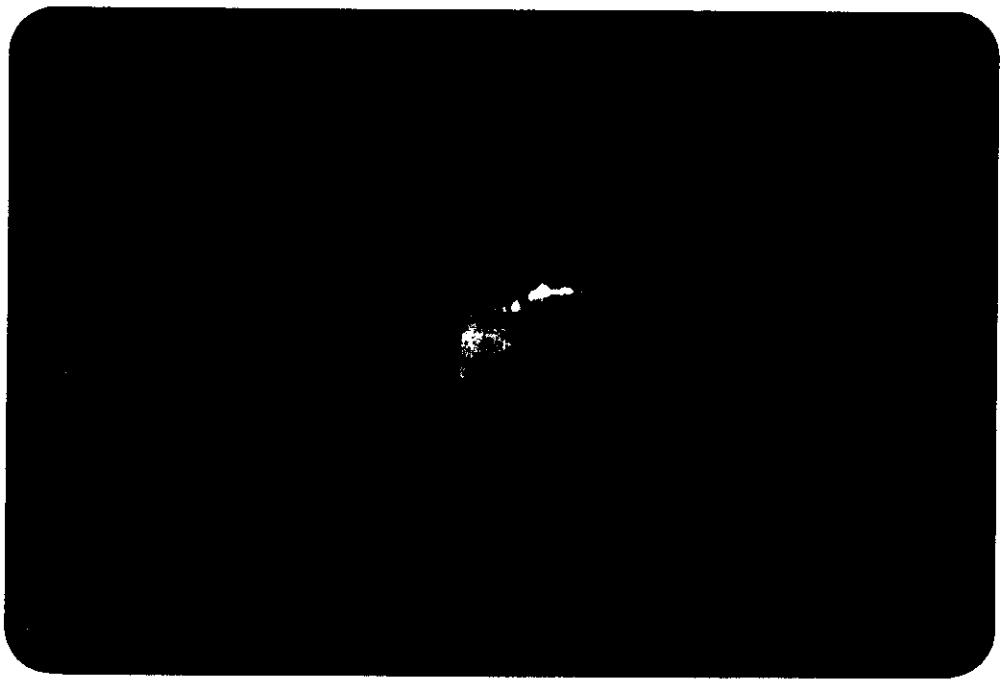

Fig.(43):Endoscopic picture after P.C.V. showing healed ulcer,after 6m.

The two cases that missed earlier follow-up were followed after one and half years. One of them showed healed ulcer, and the other was clinically excellent (grade I Viscik), but he refused endoscopy.

The pyloric movement and the antral motility were within normal, except one case in which the antral motility was sluggish and the pylorus narrowed and the patient complained of retention.Fig.(4).

In S.V. + P. Group:By the end of the first month: I2 cases were done : 7 of them showed complete healing , 5 were unhealed , one of the healed cases showed narrow deformed pyloric opening and evidence of gastric retention.

By the end of 6 months, one of 7 healed cases showed recurrence of an active ulcer and from the 5 unhealed cases, 3 became healed. Endoscopy done for one of the unfollowed cases in the first month showed healed ulcer.Fig.(44 & 45).

By the end of one year: one of the 2 unhealed ulcers became healed and the other remained unhealed till now (after 2 years). The case showing narrow deformed pyloric opening has been re-operated upon and drainage operation was added (gastro-jejunostomy).

Fig.(44):Endoscopy of pre-operative duodenal ulcer.

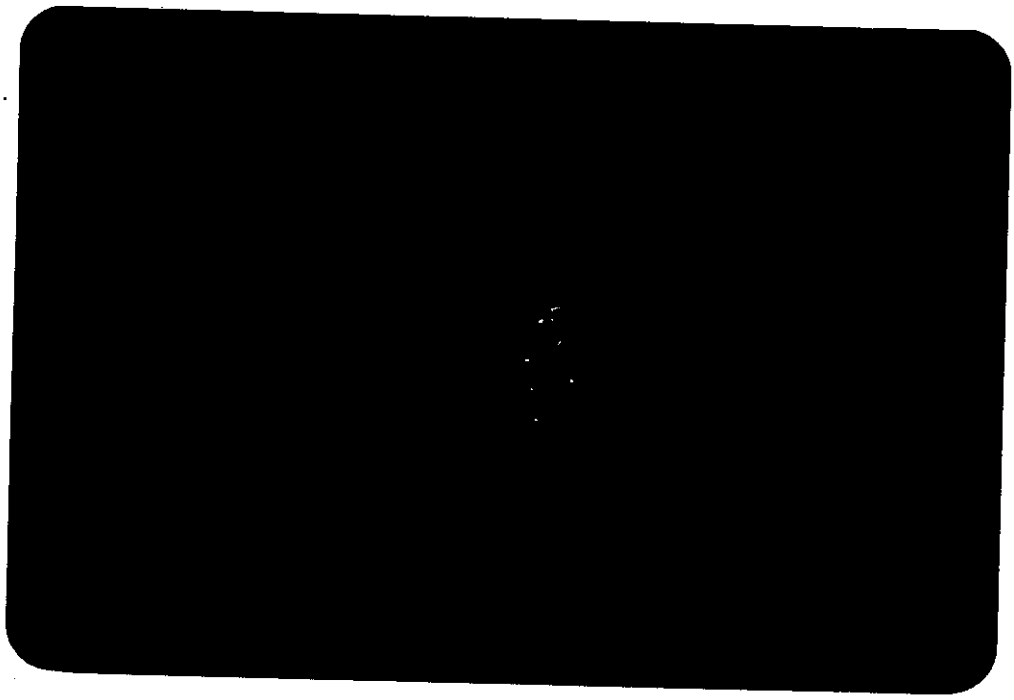

Fig.(45):Endoscopy after S.V.+P. showing healed duodenal ulcer and anastomatic line after 6 m.

In T.V. + P group:- By the end of first month, I5 cases were examined. I2 of them showed healing, 3 cases were unhealed. Fig.(46 & 47).

By 6 months, 2 of the 3 unhealed cases became healed after one and half years.

Table (9)

Accuracy of endoscopy in localizing ulcer

Total No.	Accurate	Inaccurate		
		Deformed	Other site	-ve
48	36	3	7	2
	75%	6.2%	I4.6%	4.2%

From 48 cases, 36 sites of ulcer as detected endoscopically did coincide with the operative findings.However in I2 cases, the endoscopic findings were different. in 3 cases, only deformity could be detected, the operative finding were posterior ulcers.

In another 7 cases, the ulcer proved during surgery to be anterior,while in the remaining 2 cases, no ulcer could be seen by endoscopy, while during operation, posterior ulcers were found in both cases . (Table 9).

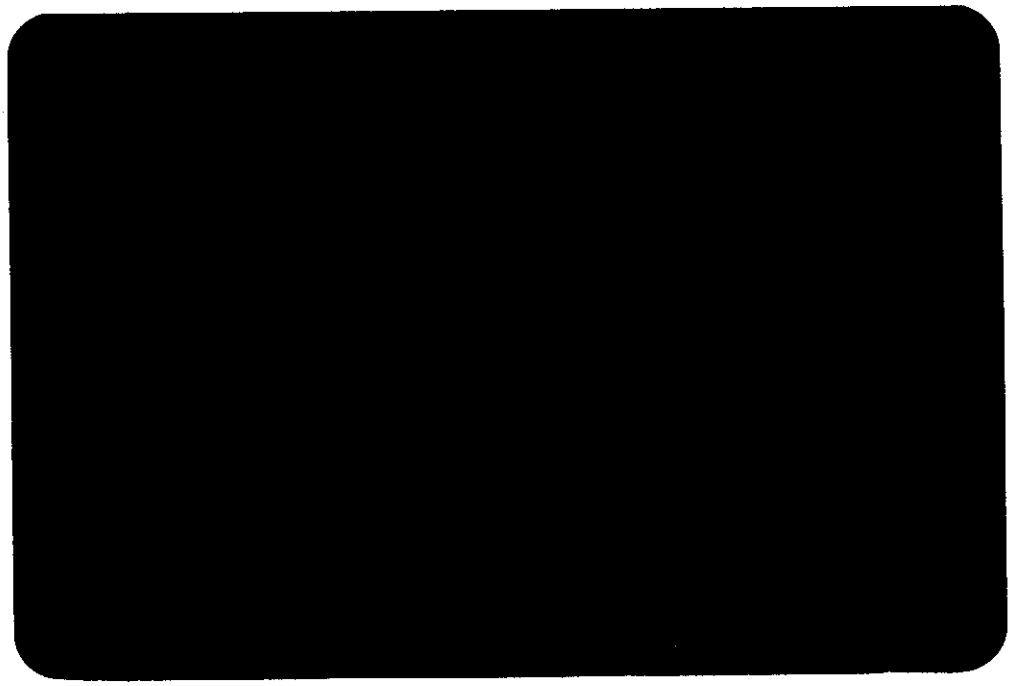

Fig.(46):Endoscopy showing pre-operative duodenal ulcer.

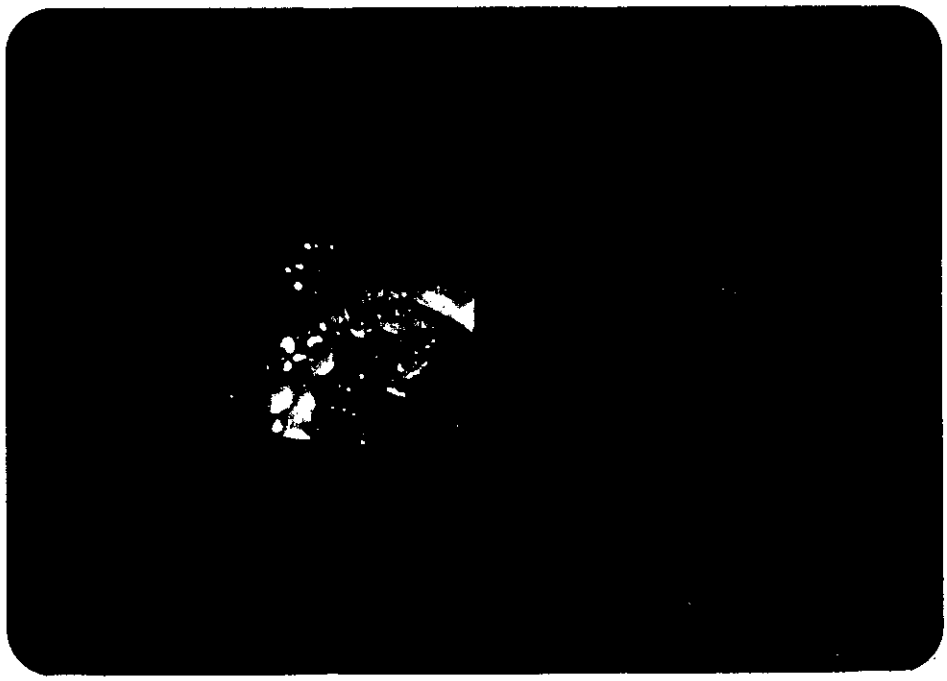

Fig.(47):Endoscopic picture after T.V.+P. showing healed ulcer after I month.