RENAL PAPILLARY NECROSIS IN IPOH

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SUMMARY

594 intravenous urograms done at the General Hospital, Ipoh, from January 1981 to March 1985 were reviewed for renal papillary necrosis (RPN). 11 cases (1.8%) of RPN were detected. Of these three were due to diabetes mellitus; eight were due to analgesic nephropathy. There was an equal incidence in males and females, contrary to the experience in the West and Australia. RPN was observed mainly in the older age groups. Five of the 11 cases of RPN presented as renal clinic.

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INTRODUCTION

Previous studies done by the authors have shown that analgesic abuse, RPN and analgesic nephropathy (AN) are prevalent in the Malaysian population. In a survey conducted on three different groups of population, viz., inpatients in the medical wards of General Hospital, Kuala Lumpur, the people from Kampong Pandan and two rubber estates, it was found that 0.5 – 2.0% of the people surveyed had consumed more than 2 kg of analgesics, an amount sufficient to cause renal damage.[1] In a retrospective radiological study, of the 1011 intravenous urograms (IVU) done at the Nephrology Unit, General Hospital, Kuala Lumpur from 1968 to 1981, 20 had RPN.[2] In a prospective study performed on patients admitted to the medical and renal wards of General Hospital, Kuala Lumpur from January 1982 to February 1983, 12 new cases of AN were documented.[3] Since then a further 13 cases have been documented.

As the above studies were mainly confined to Kuala Lumpur, we wanted to determine whether RPN occurs in other parts of Malaysia as well.

MATERIALS AND METHOD

IVUs done at the General Hospital, Ipoh, Perak from January 1981 to March 1985 were

reviewed retrospectively for RPN. In addition, these patients had various investigations relevant to their renal condition performed.

Those patients who had RPN detected in the IVU were called back for review. Patients were questioned as to whether they had consumed analgesics and if so, the type, frequency, amount, duration as well as the reason for intake was ascertained.

RESULTS

IVUs of 594 patients were reviewed: 251 were Malays, 205 Chinese, 138 Indians; 374 were males and 220 were females and they were of all age groups (Table I). The IVUs were categorised into two groups, viz., medical (369 patients) and surgical (225 patients), according to whether they were requested by the physician or surgeon respectively.

The indications of IVU are shown in Table II. Indications which are unlikely to cause RPN such as nephrotic syndrome, carcinoma of cervix and abdominal mass are also included in the review.

TABLE I

IVU DONE IN GENERAL HOSPITAL IPOH: MEDICAL/SURGICAL, 1981–1985

Age (yrs.)	Malay		Indian		Chinese		Total
	M	F	M	F	M	F	
< 10	2	2	2	1	1	1	9
11 – 20	12	8	5	2	12	7	46
21 – 30	34	12	21	14	13	9	103
31 – 40	34	18	14	7	17	12	102
41 – 50	27	23	16	8	25	22	121
51 – 60	32	14	18	3	22	15	104
61 – 70	10	7	14	7	11	9	58
71 – 80	6	–	2	3	11	8	30
81 – 90	1	–	–	–	2	–	3
Unspecified	5	4	1	–	4	4	18
Total	163	88	93	45	118	87	594

Note: M – male; F – female.

TABLE II

INDICATIONS FOR IVU DONE IN GENERAL HOSPITAL, IPOH : 1981 – 1985

Indication	Number		Total
	Medical	Surgical	
Haematuria	24	26	50
Proteinuria	7	–	7
Hypertension	51	3	54
Diabetes Mellitus	4	–	4
Acute Renal Failure	2	–	2
Chronic Renal Failure	34	–	34
Nephrotic Syndrome	31	–	31
Colic/Calculi	91	148	239
Urinary Tract Infection	47	13	60
Systemic Lupus Erythematosis	6	–	6
Polycystic Kidneys	5	–	5
MVA with Injury to Kidney	–	2	2
Prostatomegaly	5	3	8
Renal Tuberculosis	9	1	10
Carcinoma of Cervix	17	1	18
Abdominal Mass	14	9	23
Miscellaneous	22	19	41
Total	369	225	594

Radiological changes of RPN were observed in 11 cases accounting for 1.8% of all IVUs reviewed. There was an equal incidence of RPN in both sexes (Table III). RPN was observed in the older age groups (above 40 years). Six of the RPN were from the medical groups and five of the RPN were from the surgical group.

TABLE III

PATIENTS WITH PAPILLARY NECROSIS

Age (yrs.)	Malay		Indian		Chinese		Total
	M	F	M	F	M	F	
41 – 50	1	–	–	–	1	1	3
51 – 60	2	–	–	2	–	1	5
61 – 70	1	–	–	1	1	–	3
Total	4	–	–	3	2	2	11

Three cases of RPN are due to diabetes mellitus and the rest are due to analgesic nephropathy. Haematological investigations performed to exclude sickle cell anaemia was negative in all these patients.

The clinical presentation of these patients are listed on Table IV. Five patients presented with symptoms of renal colic. Of these, three patients presented to the surgeons and two patients presented to the physicians. One patient presented as urinary tract infection.

Attempts were made to recall all the 11 patients with radiological evidence of RPN but we were only able to review five patients.

Of the five patients reviewed, three admitted to taking analgesics regularly and two denied analgesic intake. On the whole, three patients admitted to taking analgesics regularly and in eight patients the analgesic intake is not known. The type and estimated quantity of analgesic intake are listed in Table V. Two patients had consumed only aspirin and the other had consumed only ponstan.

TABLE IV

PATIENTS WITH PAPILLARY NECROSIS

Initial Diagnosis	Number
Diabetes Mellitus	2
Urinary Tract Infection	1
Haematuria	1
Renal Colic/Calculi	5
Hypertension	2
Total	11

TABLE V

PATIENTS WITH PAPILLARY NECROSIS
(WITH HISTORY OF ANALGESIC INTAKE)

Aspirin	–	2 (400 g, 150 g)
Ponstan	–	1 (4200 capsules)

Patients presented at varying stages of renal impairment (Table VI) ranging from normal renal function to severe renal impairment.

The major radiological changes noted were irregularity and shrinkage of the papillae, presence of medullary cavities and ring shadows formed by contrast around the necrotic papilla (Figs. 1, 2). Calcification in the necrotic papilla was noted but was uncommon.

DISCUSSION

There were 11 cases of RPN (1.8%), of which three were due to diabetes mellitus; the remaining eight (1.4%) can be attributed to analgesic nephropathy. In the latter group, other causes for RPN such as diabetes mellitus and sickle cell anaemia had been excluded by laboratory investigations. History of analgesic abuse had been confirmed only in three of the cases. Although in eight cases the analgesic intake was not known and two patients denied analgesic abuse, this does not exclude the possibility of analgesic nephropathy as the radiological changes were consistent with RPN and it is well known that many patients with analgesic nephropathy will deny analgesic abuse.[4]

TABLE VI

PATIENTS WITH PAPILLARY NECROSIS
B.U./CREAT./U.A. AT FIRST VISIT

Blood Urea mmol/l	Creatine μmol/l	Uric Acid μmol/l
2.9	N.D.*	310
7.4	N.D.	340
8.5	N.D.	480
5.6	70	450
4.3	100	180
4.8	100	N.D.
5.4	140	300
3.7	160	540
10.6	190	690
7.8	200	570
25.9	400	660

*N.D. – Not done.

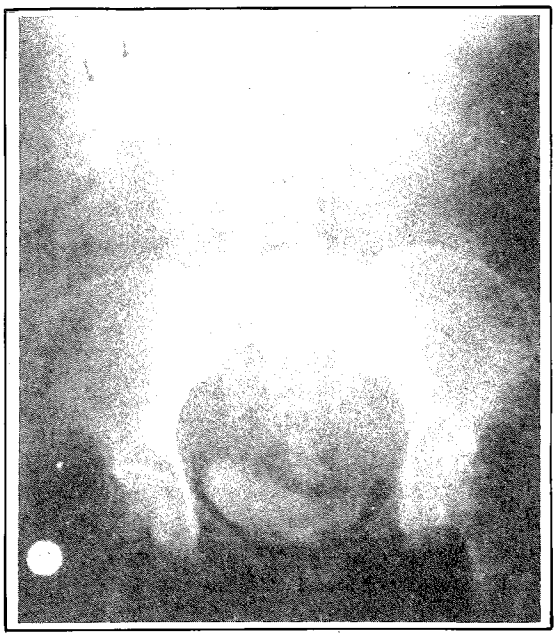

Fig. 1 Calyceal shrinkage and irregularity of right mid-pole and upper pole calyces.

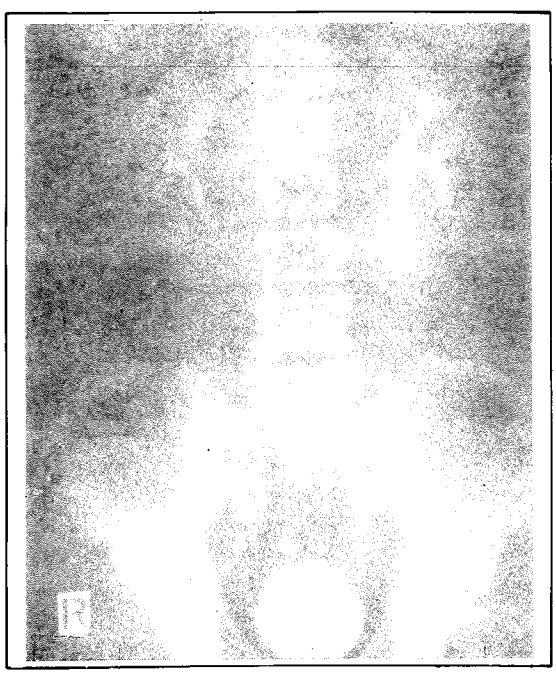

Fig. 2 Ring shadow in left upper minor calyx. Shrinkage in left mid. and right mid. and lower pole calyces.

Analgesic nephropathy occurs five to six times more frequently in females than in males.[5] This study demonstrates an almost equal incidence in male and females, contrary to the experience of other countries. RPN in this study occurred only in the older age groups (above 40 years). This is similar to the experience in other countries.[5] However, other studies performed locally have shown that RPN does occur even in the younger age groups (20 – 40 years).[2,3]

Two patients with RPN had been abusing aspirin and one had been abusing ponstan. The relevance of these findings are discussed elsewhere.

Analgesic nephropathy needs to be considered as a differential diagnosis in patients presenting as renal colic or calculus.[6] Necrotic papillae can be sloughed and cause symptoms and signs of renal colic such as colicky pain in the loin associated with haematuria. The sloughed papilla could be mistaken for a calculus especially if it is calcified.[7] Five of the 11 patients in this study presented as renal colic. It needs to be emphasised that these patients can present to the surgeon in addition to the physician. Five of the 11 RPN detected and three of the five patients presenting as colic were initially seen by the surgeons.

In conclusion, we have demonstrated the occurrence of RPN and AN in Ipoh. Previous studies have demonstrated their occurrence in Kuala Lumpur.[2,3] Cases of RPN have also been documented in Kuala Trengganu and Kota Bahru (Sivalingam S, Dass D: personal communication). It appears therefore that AN and RPN may be widespread, occurring throughout the country and further studies in other parts of the country are necessary.

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