

CARCINOMA OF THE CERVIX COMPLICATING PREGNANCY AND THE PUERPERIUM

(A study of 139 cases)

by

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Carcinoma of the cervix and pregnancy rarely go together. Corscaden reports an incidence of 0.005 per cent to 0.41 per cent of all pregnancies. It is said that a person who sees 2 or more cases in the second trimester probably will be generally accepted as an authority, and that categorical pronouncements about this disease are not statistically significant. The influence that pregnancy and puerperium exert upon carcinoma of the cervix and the methods of management of these cases have been variously reported by different authors. Most of the reports in the literature from any single institution have formed a very small series. Two of the largest series reported in the literature are those by Sadugor *et al*, from the Rosewell Park Memorial Hospital in 1949, reviewing 124 cases and the

more recent one by Kottmeier, reviewing 239 cases from the Radium Hemmett in 1963. Still recently (1965) Praagh, Harvey & Vernon have reviewed 84 cases from the University of Toronto.

The present series of 139 cases includes 48 seen during pregnancy, 18 seen within 4 months after delivery and 73 seen between the 5th and 12th months after delivery. Following McDuff, the period of 4 months after delivery is defined as the fourth trimester for the purpose of this paper, in as much as the disease is very likely to have existed even during pregnancy. The period 5th-12th month is referred to as the late puerperium.

Incidence:- During the same period, 1955-64, there were 153,512 deliveries and abortions in the same institution, giving an incidence of .043 per cent, if only cases complicating pregnancy and the fourth trimester are taken into consideration i.e. about 1 in 2500 obstetric cases. If the cases seen during the late puerperium are also taken into consideration the incidence becomes 1 in 1,250 obstetric cases or (.086 per cent).

Table I shows the incidence amongst obstetric cases as reported by different authors.

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TABLE I

1944 Jensen	.023 per cent
1956 Hayden	.014 per cent
1961 T. K. Ghosh	.03 per cent (This excludes cases in the puerperium)
1966 R. D. Stevens	.086 per cent

Out of 8,800 cases of carcinoma of the cervix seen during the above period, 139 cases were seen complicating pregnancy or puerperium giving an incidence of 1.58 per cent. If only those cases complicating pregnancy and the first 4 months of the puerperium are taken into consideration the incidence becomes 0.79 per cent. Table II shows the incidence amongst cases of carcinoma of cervix according to various authors.

TABLE II

1949 Truelson	0.55 per cent
1949 Sadugor	2.40 per cent
1950 Johnson	1.49 per cent
1955 Holzaepfel	3.00 per cent
1961 T. K. Ghosh	2.21 per cent
1962 Kottmeier	3.30 per cent
1965 Praagh, Harvey & Vernon	1.90 per cent
1966 R. D. Stevens	1.58 per cent

Average age incidence and parity:- The majority of the patients seen in this series were in the age group 26-35 years. (84 out of 139 cases.)

Amongst the non-pregnant women the majority were seen in the age group 40-60 years (50 per cent). The average age in Kistner's series was 47.2 years. It is observed that the patients in the pregnant series are on an average about 10 years younger compared to the non-pregnant series in this hospital. This is in conformity with the observation of other workers also (Praagh, Harvey and Vernon).

The majority in this series have had 5 or more children (91 out of 139 cases). The average parity in Kottmeier's series was 3. In Kistner's series it was 4.9.

Table III shows the distribution of the cases with reference to the stage of the disease and the pregnancy trimester according to different authors. (Kottmeier's figures represent 1st & 2nd trimesters combined).

Table IV shows the number of cases in relation to the various pregnancy trimesters according to the various authors. (Kottmeier's figures represent 1st & 2nd trimesters combined).

Table V shows the distribution of cases in relation to the stage of the disease according to the various authors.

TABLE III

Trimester	Stage I				Stage II				Stage III				Stage IV			
	Kot	Kis	PH	RDS	Kot	Kis	PH	RDS	Kot	Kis	PH	RDS	Kot	Kis	PH	RDS
	&V				&V				&V				&V			
I	32	13	10	1	28	11	7	4	3	—	Nil	—	—	—	—	—
II	—	23	2	2	—	12	4	9	—	1	2	—	—	—	—	—
III	—	1	7	7	6	12	5	16	5	—	2	7	1	—	3	—
IV	—	1	10	3	43	19	7	12	15	—	2	2	9	—	5	1
Late puerperium	—	—	9	5	3	—	6	39	12	—	1	24	5	—	3	5

TABLE IV

Trimester	Kot.	Kist.	P.H. & V.	R.D.S.
I	63	24	17	5
II		35	7	13
III	12 (5.6%)	13 (11.6%)	17 (20%)	30 (21.6%)
IV	67	35	24	18
Late puerperium	70	—	19	73

TABLE V

	Kot.	Kist.	P.H. & V.	R.D.S.
Stage I	52 (15%)	63 (53.7%)	38 (47%)	18 (13%)
Stage II	120	54	29	80
Stage III	35 (16%)	—	6 (7%)	35 (25%)
Stage IV	15	—	11	6
	212	117	84	139

Kot: Kottmeir.

Kist: Kistner.

PH & V: Praagh, Harvey & Vernon.

RDS: R. D. Stevens.

Thirty cases were seen in the 3rd trimester, 18 in the early puerperium and 73 in the late puerperium (vide Table IV). Out of these, 35 were in stage III and 6 in stage IV (vide Table V). The signs and symptoms did not differ from those who were not pregnant. Out of 30 cases seen in the 3rd trimester, 25 were in the late 3rd trimester or commencement of labour. This appears to be the first largest figure ever to be published in the literature. The above illustrates the general reluctance and superstition on the part of the hospital class of patients to seek medical advice when the symptoms first appear.

At the above hospital, only about 3.5 per cent of the non-pregnant patients were seen in stage I, 55 per cent in stage II, 38 per cent in stage III and 4 per cent in stage IV.

Method of management

As the general condition of the hospital class of patients is unusually poor and the disease fairly advanced in a good number of them, radiotherapy formed the main line of attack. In 36 cases the uterus was first emptied by a classical caesarean section or hysterotomy and then the lesion was treated with intra-uterine and intra-vaginal radium applied according to the Manchester technique, supplemented with deep x-rays, where deemed necessary.

In one case abortion was induced by intra-uterine hypertonic glucose and later radium was applied. In 2 cases an extended Wertheim's hysterectomy was performed with the pregnancy in situ at the 12th and 22nd week respectively. In one case an abdominal hysterotomy was first

performed followed by radium and Wertheim's hysterectomy. One patient first received radium followed by abdominal hysterotomy, transperitoneal lymphadenectomy and deep x-rays. Amongst the remaining 96 cases, 1 was seen after a spontaneous abortion, 1 after a forceps delivery and the rest after natural deliveries. These received radium and deep x-rays except 2 in whom an extended Wertheim's hysterectomy was performed; and, 18 others were left without any treatment.

There are 11 survivors who had lived for 5 years or more free of the disease. Two were seen in the 2nd trimester and 5 in the late puerperium (Table VI). Among the 8 patients who died within 2 years, due to persistence of the disease within the pelvis or due to metastases in spite of treatment, 4 in the late 3rd trimester, 3 in the 4th trimester and 1 in the late puerperium, were in stage I of the disease when treatment was instituted. Four of them had classical caesarean section followed by radium and deep x-rays, 2 had radium and deep x-rays after natural delivery and one had an extended Wertheim's hysterectomy done 8 months after a natural delivery. One who received radium and deep x-rays after emptying the uterus by a classical caesarean section in the 3rd trimester and one in the 4th trimester who received radium and deep x-rays were seen three months after treatment with supraclavicular metastases and lung secondaries. The others of course had massive pelvi-abdominal recurrences.

Among 36 cases who are dead or presumably dead, seen in the Stage

II, 6 left without treatment. Among the 30 who received treatment 8 were in the 3rd trimester, (7 late 3rd trimester) 5 in the 2nd trimester, 6 in the 4th trimester and 11 in the late puerperium (Table VII).

Those seen in the puerperium received radium and deep x-rays and those seen during pregnancy also received radium and deep x-rays after emptying the uterus after a classical caesarean section or hysterotomy, except in one case where the uterus was about 22 week's pregnant and an extended Wertheim's hysterectomy was carried out with the pregnancy in situ. Two of the patients treated in the 4th trimester were seen within 3 months with supraclavicular and mediastinal metastases.

Patients seen in stage III & IV of the disease are, however, not discussed because the prognosis has been generally hopeless.

In the above analysis although it appears that distant metastases are rather frequently seen in patients treated in the early puerperium and in the late 3rd trimester, after emptying the uterus by a classical caesarean section, 5 comparable cases have lived for 5 years or over in this series. Hence it is difficult to believe that emptying the uterus after the late 3rd trimester, either naturally or by caesarean section, before the application of radium or deep x-rays should deleteriously influence the rate of growth of the tumour according to the observations of Kistner and the earlier observations of Kottmeier.

Kinch, in 1961, correlating staging and results with pregnancy trimester and also comparing comparable non-

pregnant series, came to the conclusion that cancer cervix, stage I, in the pregnant woman has a statistically significant increased mortality rate.

Kottmeier, in his Abraham Flexner lectures in 1953, made a statement that carcinoma diagnosed in the late 3rd trimester and the puerperal period carried a poor prognosis. With the larger experience of the Radium-Hemmet, out of 8 cases of carcinoma of the cervix complicating pregnancy, seen in the late 3rd trimester treated by caesarean section and radiotherapy, none survived more than 18 months. However, in 1962 according to current experience, he has had a 5 year survival rate of 45.6 per cent in 79 cases seen in the puerperal period.

More recently Praagh, Harvey and Vernon observed that the 5 year survival rate of carcinoma associated with pregnancy revealed a similar distribution and similar average survival to that in the non-pregnant group. They also observed that the effect of mode of delivery on the maternal survival is difficult to evaluate. In 9 cases diagnosed in the 3rd trimester in their series the mode of delivery did not alter the maternal survival rate.

Out of an average of 700 cases of cancer of the cervix unassociated with pregnancy treated by radiotherapy at the Government Hospital for

Women and Children, Madras-8, South India, only an average of 30 patients per year came for follow up. Due to poor socio-economic conditions, ignorance, and superstition the follow up is very poor. In as much as the vast majority are seen in stage III and late stage II, the 5 years cure rate is very poor and the recurrence rate very high. During the 8 year period 1955 to 1962 only 27 cases reported alive at the end of 5 years. Only 5 per cent of the cases treated during the last 10 years could be traced as alive. Hence it is not possible to compare the results of this series with the non-pregnant series seen in this institution.

However, the present study appears to confirm the trend that co-existence of pregnancy does not alter the prognosis.

Table VI shows an analysis of 11 patients who have lived for 5 years or more without clinical evidence of the disease.

Table VII shows an analysis of patients dead or presumably dead, trimester wise and stage wise.

Cases which have been presumed to be dead were readmitted with massive pelvi-abdominal recurrences or lung secondaries or supraclavicular metastases or discharged in a moribund condition or left without treatment with advanced disease.

TABLE VI

	Ist Tri- mester	IInd Tri- mester	Late IIIrd Trimester	IVth Tri- mester	Puerpe- rium
Stage I	—	—	2	1	—
Stage II	—	2	3	—	2
Stage III	—	—	—	—	1

TABLE VII

Trimester	Stage I	Stage II	Stage III	Stage IV	Total	Not traceable
I	—	—	—	—	—	2
II	—	5	1	—	6	2
Early III	—	1	1	—	2	2
Late III	4	7	2	—	14	4
IVth	3	7	1	1	11	1
5-12th month after delivery	1	15	13	5	34	30
Total	8	35	18	6	67	41

Summary

(1) The incidence of carcinoma of the cervix complicating pregnancy and puerperium is about 1 in 2,500 obstetric cases in the above institution, excluding the late puerperium.

(2) Amongst cases of carcinoma of cervix seen in the above institution, incidence of associated pregnancy or early puerperium is 0.79 per cent.

(3) Patients with carcinoma of the cervix associated with pregnancy or puerperium are found to be generally about 10 years younger than those seen with the disease during non-pregnant period.

(4) The majority of these patients have borne 5 or more children.

(5) The large number of cases seen in the late 3rd trimester is striking compared to the other series.

(6) The number of stage III cases also is comparatively greater than the other series (25 per cent).

(7) Except for cases where an extended Wertheim's hysterectomy was performed the management was primarily radiotherapy after emptying the uterus.

(8) Out of the 139 cases reviewed nearly 50 per cent (67) of the patients

were dead or presumably dead. This is explained by the large number of them being in advanced stages of the disease and in poor general condition when seen.

(II) In spite of the poor follow up (about 30 per cent not traceable) there were 11, 5 years survivors in this series.

(12) This study appears to confirm the trend that co-existence of pregnancy does not alter the prognosis of cancer of the cervix.

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References

1. Corscaden: *Gynec. Cancer*, Baltimore, 1962, Wilkins & Williams p. 288.
2. Ghosh, T. K.: *J. Obst. & Gynec. India* 12: 32 1961.
3. Gustavason, D. C. and Kottmeier: *Acta Obst. & Gynec. Scand.* 41: 1, 1962.

4. Holzaepfel, J. H., et al.: Am. J. Obst. & Gynec. 76: 292, 1958.
5. Hyden, G. E.: Am. J. Obst. & Gynec. 71: 780, 1956.
6. Kinch, R. A. H.: Am. J. Obst. & Gynec. 82: 45, 1961.
7. Kistner R. M., Gorbach A. C. & Smith G. V.: Obst. & Gynec. 9: 552, 1957.
8. Kottmeier, Carcinoma of the Female Genitalia Baltimore, 1953, Wilkins and Williams, p. 148.
9. Mcduff, H. C., et al: Obst. & Gynec., 8: 196, 1956.
10. Sadugor M. G., et al: Am. J. Obst. & Gynec., 57: 933, 1949.
11. Truelson—Cancer of the Ut. Cx-1, London, 1949 Lewis 72: 75, 1965, p. 230.
12. Van Praagh, I. G. L., et al: J. Obst. & Gynec. Brit. Comm.