SECONDARY POLYCYTHEMIA IN ASSOCIATION WITH LEIOMYOMA IN THE UTERUS

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Leiomyoma is by far the commonest tumour of the female genital system and it would not be an exaggeration to say that one in every five women in the active reproductive period harbours atleast one such nodule. More often the tumours are multifocal in origin producing bizarre uterine shapes and leading to disorders of the menstrual cycle with a heavy loss of blood. Iron deficiency anaemia is the ensuing result which fails to respond to hematinics until the tumour is removed.

However, in an occasional case, instead of anaemia, a polycythemia developes. First such association of leiomyoma with secondary polycythemia was published by Thomson and Marson in 1953 and since then only a handful of such cases are on the record of world literature.

From our country there appears to be a report of only one case by Paranjothy and Vaish in 1967. The first case came to our observation about a year and half back in 1974 when one staff member came for preoperative hematological investigations for a hysterectomy for multiple fibromyomas. Instead of the usual anaemia the patient had high colour and her heamoglobin was 16 gm%. This was unusual since she had polymenorrhagia for 2-3 years. Gleaning through the literature we found that secondary polycythemia does sometimes accompany leiomyoma due to production of erythropoietin from the tumour tissue (Wrigley *et al* 1971).

Since then we have been investigating all women admitted for surgery for leiomyoma and till September, 1976, we collected 53 cases. In this group also we found one woman with polycythemia.

Due to paucity of reports of secondary polycythemia in association with leiomyoma we report these 2 cases in detail. The hematological profile of the whole group forms a separate publication.

Case 1

A 35 year old patient was referred on 12-9-74 for hematological profiles and blood matching prior to hysterectomy planned for fibromyomas. She was married 8 years back but had no issue. For last 2 to 3 years she experienced polymenorrhagia, causing great inconvenience to her. On examination, she was of average built, weighing 62 Kg. Uterus, per abdomen, was 24 weeks' size of pregnancy, firm, fixed, non-tender, irregular and with multiple bossings on its surface. Vaginal examination confirmed these findings but did not reveal any extra point.

Investigations

Haemoglobin 16 gm%, total R.B.C. Counts 6.8 million/cu mm, total W.B.C. Count 9800/cu mm with 62 poly. 30 lympho. and 8 eosino E.S.R. 2 mm (Wintrobe) after one hour, platelet count was 170,000 per cu. mm. Bleed-

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Accepted for publication on 25-2-77.

ing time 2 minutes and 40 seconds, clotting time 6 minutes. Blood group B Rh positive. Urine, stool, blood sugar, cholesterol and urea were all in normal range.

A total hysterectomy with left sided salpingo-oophorectomy was done on October 1, 1974. Postoperative period was uneventful except for urinary tract infection which was cured later on

Uterus, on naked eye examination, measured 24 x 12 x 16 cms. It was very irregular in outline, bossed by many nodules. Cut surface showed the largest nodule measuring 10 x 8 cms in the fundal region. Microscopically, typical features of a well vascularized, cellular leiomyoma were seen with many areas of hyaline degeneration.

Case 2

A 50 year old female was admitted on 23-8-1975 with complaints of menorrhagia for 3 years. Her cycles previous to this complaint were regular although flow was excessive for about 4 to 5 years. She was married for last 30 years and had 6 living issues. The last child was 10 years old.

On examination she was well built and had high colour rather than pallor. Uterus was enlarged to 18 weeks' size of pregnancy and irregular in outline. Cervix had slight erosion. The heamatological data are depicted in Table 1.

She was operated on 28-8-75 and a total hysterectomy with bilateral salpingo-oophorectomy was done. She had uneventful postoperative stay. She was last examined in March, 1976.

The uterus was enlarged and very nodular measuring 16 x 14 x 12 cms, it had two main nodules, one extending from anterior aspect upwards and one from the left lateral wall to the uterine cavity. Microscopically usual leiomyomatous structure was seen with not much of vascularization.

The follow up haematological profiles are shown in Table 1.

Comments

The pathogenesis of erythrocytosis developing in association with leiomyoma of uterus has been a subject of much speculation. Paranjothy and Vaish (1967) first opined that the tumour mass when very large interferes with pulmonary ventilation causing hypoxia, which stimulates erythropoisis or that the tumour mass presses upon the kidney causing increased erythropoietin secretion. Earlier Horawitz and McKelway thought that an arteriovenous shunt mechanism may be responsible since the tumour was exceptionally vascular in their case. The first concrete evidence of erythropoietic activity of the tumour itself was presented by HertKo (1968), who with an extract of tissue showed erythropoietic activity by a bioassay method. Wrigley *et al* (1971) have conclusively demonstrated that the erythropoietin was actually secreted by the tumour tissue and that the fluid within the cystic areas of the tumour also had

TABLE 1

Case 1	Date	Hb in gm%	R.B.C. in million/ cu.mm	Platelet count in million/ cu.mm	P.C.V.	E.S.R.
	12-9-74	16	6.8	170,000	62	2 mm
	12-11-74	14	5.5	250,000	46	6 mm
	14-12-74	12.5	4.2	230,000	40	5 mm
	15-2-75	12.0	4.1	240,000	40	6 mm
Case 2						
	24-8-75	17.5	6.4	160,000	60	0 mm
	9-9-75	13.0	4.5	250,000	45	4 mm
	15-12-75	12.0	4.3	240,000	42	6 mm
	10-3-76	12.0	41	220,000	4.1	10 mm

some activity. This would also explain the dramatic disappearance of polycythemia soon after operation. Payne *et al* (1969) have observed one patient for 11 years with no reappearance of polycythemia, although Damon and Holub (1958) reported one case in which polycythemia recurred 6 years after operation. We have a 2 years follow up of Case 1, and only a few months follow up of the second case.

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