PHAEOCHROMOCYTOMA IN PREGNANCY

by

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This tumour of the adrenal medulla is rare. Its incidence in general population is 0.01% and in hypertensive population is 0.5-2% (Sprague *et al* 1972). The association of phaeochromocytoma in pregnancy is a rare event and poses problems in the diagnoses, its location and the management. Besides, it carries a high maternal and foetal mortality.

CASE REPORT

A young woman aged 24 years, para 2 + 0 was admitted to the Hospital at 24 weeks of gestation with hypertension. She complained of severe headache, palpitation, giddiness and sweating when lying in supine position during the last one month. She also had occasional vomiting. Her pulse was 120/minute and blood pressure was 240/130mm of mercury. She had no oedema of the feet.

There was no evidence of cardiac failure. The uterus was 24 weeks size. The following investigations were done:

Hb—10.5 gms%. Blood urea 25 mg.%. Serum uric acid 4.5 mg.%. Serum creatinine 2.2 mg.%. Urine culture negative. X-ray chest-normal. ECG. — sinus tachycardia. Fundus normal.

This patient was treated with Calmpose and Aldomet and later with Ciplar forte. Under observation, her blood pressure was seen to be labile, coming down to 120/70 mm Hg but rising again to as much as 220/130 mm Hg. The labile hypertension made the authors direct their attention to the adrenal gland. The X-ray abdomen did not reveal any abnormality. Urinary catecholamines were predominantly adrenal secreting (600 ug/24 hrs, normal 20-40 ug/24 hrs). Urinary vanillic manellic acid was 31.2 mg% (normal 8 mg%).

In view of her pregnancy, intravenous pyelogram was considered inadvisable.

Laparotomy was decided upon. Pre-operatively her blood pressure was 180/110 mm Hg. Anaesthesia was induced with largactil 25 mg. thiopentone and gas oxygen. Phentolamine two ampoules were put in each drip. The central venous pressure and electrocardiogram were recorded during the operation. The central venous pressure was 14 cm of water.

Laparotomy was done by a transverse upper abdominal incision. The right adrenal tumour was seen displacing the kidney downwards. Right adrenalectomy was done and the tumour weighed 300 gms. The left adrenal gland appeared normal. The abdominal sympathetic chains were inspected but no extra-adrenal tumour was visible. The patient received three units of blood. During the operation, her blood pressure fluctuated from 140 to 199 mm Hg systolic and her pulse was 140/minute.

Post-operatively her blood pressure remained at about 140/100 mm of Hg for a month. Palpitation and dizziness disappeared gradually. Except for the wound infection, the patient's recovery was satisfactory.

She had a premature delivery at 32 weeks and a female baby weighing 1.6 kg was born. The duration of labour was 6 hours. The blood pressure during labour was 120/80 mm Hg.

Discussion

Phaeochromocytoma which occurs mostly in third and fourth decade of life, arises in the chromaffin tissue of the

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adrenal medulla in 90% of the cases, the right side being more commonly involved than the left. Schenker and Chowers (1971) found the tumour on the right side in 28.8% and bilateral in 10% cases. In 10% cases, the external adrenal origin from adrenal rests are found along the thoracic duct and along the bifurcation of aorta.

When the adrenaline level is high, the tumour is found to be located in the adrenal gland in 95% of cases and rarely in the region of Zukerkandl. It then causes persistent or paroxysmal hypertension with sudden onset of headche, palpitation, sweating and vomiting. When nor-adrenaline secretion is predominant, hypermetabolism in addition to hypertension is the clinical feature.

The tumour may be benign or malignant. When malignant, metastases may not occur for several years.

In only about 10% of the cases the preoperative diagnosis during pregnancy is possible. The family history of hypertension and co-existence of neuro-fibromatosis may help in the clinical suspicion of pheochromocytoma. The high levels of urinary catecholamines and vanillic mandellic acid raise the possibility of the tumour. Intravenous pyelogram is not only inconclusive but positively harmful (Blair 1963). Apart from radiation to the foetus, intravenous pyelogram can set up paroxysms of hypertension with ventricular failure, when contrast medium exerts pressure on the tumour. The rogitin test is dangerous and not advised.

Laparotomy by upper abdominal transverse incision should be carried out in order to expose both the glands and the sympathetic chains for thorough search of any extra adrenal tumour. If the tumour is diagnosed near term, caesarean section and exploration is advisable. The prolonged vaginal delivery can lead to rise in blood pressure and cerebrovascular accidents and, therefore, best avoided. In this case, however, premature labour was quick without any such complication. The increased vascularity of the tumour makes the surgery more difficult during pregnancy. There is a danger of ventricular arrythmia produced by cyclopropane and halothane as a result of high levels of catecholamines. The barbiturate anaesthesia is considered safe. The monitoring of the heart by electrocardiogram and central venous pressure during operation is essential in order to avoid arrythmias and cardiac arrest. Propanalol is also useful in preventing arrythmias.

The peripheral vasoconstruction provoked by nor-adrenaline can be prevented by alpha-receptor blocking agents, such as phenotolamine and two ampoules of this drug were added in each drip during the operation. Propanalol blocks the Beta receptors and prèvents cardiac arrythmias.

The level of catecholamines may remain elevated for as long as two years following surgery, because of the gradual resolution of catecholamine stores in the peripheral tissues (Jaffe *et al*, 1969).

The maternal mortality and the foetal mortality of as much as 50% have been recorded by Weintraub (1970). The maternal deaths are due to cerebral haemorrhage, pulmonary oedema, cardiac arrythmia. The maternal mortality is, however, lower if the tumour is diagnosed and treated before labour. The foetal mortality is due to accidental haemorrhage, placental insufficiency and prematurity.

Conclusion

Phaeochromocytoma carries a high maternal and foetal mortality. The diagnosis in pregnancy is not easy, but essential to avoid grave complications to the

mother. It is advisable that all cases of hypertension should have vanillic mandellic acid done in addition to other investigations of toxaemia of pregnancy.

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