Primary Hyperparathyroidism in Pregnancy

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Background

- PHPT in pregnancy is rare.
- Yet, the consequences of this condition are potentially grave.
- We have encountered 4 cases of PHPT in pregnancy in the last 3 years.
- This presentation consists of a brief report of these cases and a short review of the literature.
Incidence

- Parathyroid disease is not very common.
- The average annual incidence of PHPT after the introduction of routine measurement of serum calcium is 51.1±9.6 cases per 100,000. (1:1960)
- The annual incidence of PHPT among persons 39 years or younger is below 10 cases per 100,000. (1:10000).
Incidence

- In women 60 years of age the annual incidence is 188 cases per 100,000 (1:530)
- In men over 60 the incidence stands on 92 cases per 100,000 (1:1090).

Age and PHPT

- PHPT can occur in children 10 years of age and in older persons up to 100.
- The mean age is around 60.
- Age distribution follows a Gaussian Curve.
Age and PHPT

Age Distribution of 10,000 Patients With Primary Hyperparathyroidism Treated at the Norman Parathyroid Center

Average age is 59

Patient Age When Diagnosed with Hyperparathyroidism
Incidence of PHPT in Pregnancy

- During pregnancy PHPT is very rare.

- In a study by Kort et al. a total of 6 of 750 patients with PHPT (0.8%) were found to have hyperparathyroidism during pregnancy.

Incidence of PHPT in Pregnancy

- Due to the pregnancy changes of the hormonal milieu, mild elevations of PTH and calcium can result in levels within normal range and may go unnoticed by the clinician.

- Thus, the true incidence of PHPT in pregnancy may be higher than clinically detected.
Incidence of PHPT in Pregnancy

- Until 2002 less than 200 cases of primary hyperparathyroidism identified during pregnancy were reported.
- This is probably a considerable underestimate of its prevalence in pregnant patients.

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Clinical Significance

- Albeit rare its occurrence portends dire consequences.
- Fetal mortality rate stands at around 17%.
- Spontaneous abortion, stillbirth, neonatal tetany and hyper-calcemia are additional risks.
PHPT during pregnancy is associated with a 3.5-fold increase in miscarriage rates.

At times the condition is diagnosed only after 3-4 spontaneous abortions.

Pregnancy loss often occurs in the second trimester and is associated with multiple miscarriages when not addressed.

Pregnancy loss is more common as calcium levels exceed 11.4 mg/dl but can be seen at all elevated calcium levels.
Mothers with a very high calcium level (above 12.0 mg/dl) have the highest risk of fetal demise and death.

The largest series in the world shows that the risk of fetal death is over 50% in women with calcium levels above 11.5, and as high as 85% when the calcium levels get near 13.

*(Clinical Endocrinology: 2009:71;104-109.)*
Calcium Levels and Fetal Loss

Percent of Pregnancies Lost in Women With Primary Hyperparathyroidism

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Norman Parathyroid Clinic
Other Clinical Manifestations

- Increased risk of hypertension (pre-eclampsia and eclampsia) in the mother.
- Risk of maternal arhythmias during labor and delivery.
- Risk of permanent hypo-parathyroidism in baby D/T failure of the parathyroid glands to form.
- Risk of premature birth.
- Risk of neonatal seizures during first few days of life.
Therapeutic Options

- Treatment of PHPT during pregnancy is challenging because of limited data; by 2000 only 145 cases of PHPT during pregnancy have been described.

- Treatment is based on the clinical and laboratory results of the mother, the fetus, and timing of diagnosis.
A review of the literature indicates a substantial improvement in fetal outcome when parathyroidectomy is done during pregnancy. Therefore, parathyroidectomy is the treatment of choice when the diagnosis is made during pregnancy. Conservative Rx with postponing operation until after delivery is possible in specific circumstances.
Conservative management for asymptomatic or mildly symptomatic patients includes: careful follow-up, hydration, limited calcium intake with supplemental phosphates after ruling out renal failure, and hyperphosphatemia.

Furosemide, promotes calciuresis and should be used to lower serum calcium.
Our Experience

- 4 cases were operated for PHPT in pregnancy. (3 in Sheba)
- 2 cases in the second trimester (gestation week 19 and 24 respectively)
- 2 cases after delivery. (4 and 7 weeks post partum).
- Patients’ ages were 31, 31, 34 and 40 years.
Relevant Pre-op data

- PTH levels 158-1000 pg/ml
- Urine calcium 399-1357 mg/24h
- Serum calcium 10.2-13.0 mg%
Pre-op localization

- In all 3 patients operated in Sheba localization was obtained only with US
- (in 2 while pregnant and in 1 while breast feeding)
- In all 3 patients rapid PTH assay was used with significant drop in level.
- In 2 patients a single and in 1 double adenoma were found.
- All 3 patients and babies (2) are doing well.
- Mean actual operation time was 14.5 minutes.
To conclude:

- PHPT in pregnancy is one of the true emergencies with hyperparathyroidism.

- Do not fool around here!

Thank You!