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A ESTABLISHMENTS OF RELATIONSHIP BETWEEN PARATHYROID ADENOMA AND PATHOLOGICAL FRACTURE (INCIDENTAL)

General Medicine

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ABSTRACT

Parathyroid Adenoma is the common cause of primary hyperparathyrodism present with mostly asymptomatic Hypercalcemia. In present case report we describe a case of Adenoma with Hypercalcemia and Pathological Fracture.

- Parathyroid Adenoma lead to excessive secretion of PTH (Parathyroid Hormone).
- PTH is 84 Amino acid single chain peptide

It act by maintain the Ca-Homeostatic mechanism by – direct action on the Bone and Kidney.

- By ↑ Catt & ↓ Phosphate & Indirectly ◦action-↑ Vitamin - D
- In case of Parathyroid Adenoma ↑↑ PTH → lead to bone resorption & release calcium & Phosphate excretion - ↓ Bone Density & Hyaercalcemia ↑ incidence of Pathological Fracture.

KEYWORDS

Parathyroid Adenoma Hypercalcemia # Fracture

INTRODUCTION:

- Parathyroid glands are small gland of endocrine system in the neck behind Thyroid glands. They are four in number.
- In Parathyroid Adenoma – mostly – 80% case Hyperplasia of single gland – mostly inferior Parathyroid gland occur.
- In 15% case all four gland enlarged which lead to excessive release of PTH & disturance of calcium Homeostasis – Hypercalcemia occur.
- Hypercalcemia – most common cause is |Parathyroid Adenoma - , second – is malignancy.
- In case of pathological # must common – cause is osteoporosis & divided according to age group.
- In – 20-50 age group – Osteomalacia, Malignancy, Cystic lesion of bone & endocrine disorder.
- In these study
- We prove that pathological fracture is due to Hyperparathyrodism after excluding another cause.

H/O - 45 year old female came with h/of slip down č pain & Tenderness in the right hip region.

- PT is admitted in Orthopedics Department
- Routine IX
- CXR
- MRI, PHB (Pelvis with both hip) done
- & Pathological Fracture detected in right femoral neck region. – Patient is managed from – their side by conservatively.
- Transferred to Medicine Department for Hypercalcemia.
- Here all another IX done & finally Parathyroid Adenoma detected – malignancy is excluded & P

*** Material & Method**

- A single case study

*** IX:**

CBC	Allsera
: Hb = 12.4 (12.0 – 16.0 g/dl	: Na = 132 (136 – 145mmol/L)
TC = 9010 (4000 – 10,000 milli/cmm)	K = 3.8 (3.5 – 5.1mmol/L)
APC=358000 (150000-450000ml/cmm	Creat = 0.68 (0.65 – 1.65mg/dl)
MCV = 87.02 (78-100 femtolitre)	Urea = 42.0(15-45 mg/dl)
MCHC=32.5 (32-36 g/dl)	Phosphate = ↓2.0 (2.3 – 4.7mg/dl)
MCH = 28.25 (27 -31pg/dl)	Calcium = 15..3(N : 8.4 – 10 mg/dl) UA = 10.7 (2.6-7.2)

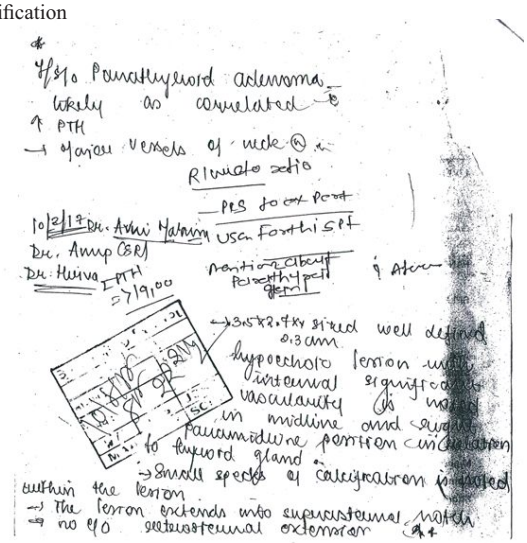
IPTH = (Intact Parathyroid Hormone) = 1900 pg/ml.
* Urine Examination : (N)
* Vitamin D = 40 U (N 30 – 100ng/ml)
Vit B12 = 776(211-811pg/ml)
* MRI &CXR– PA

MRI PELVIS WITH BOTH HIP

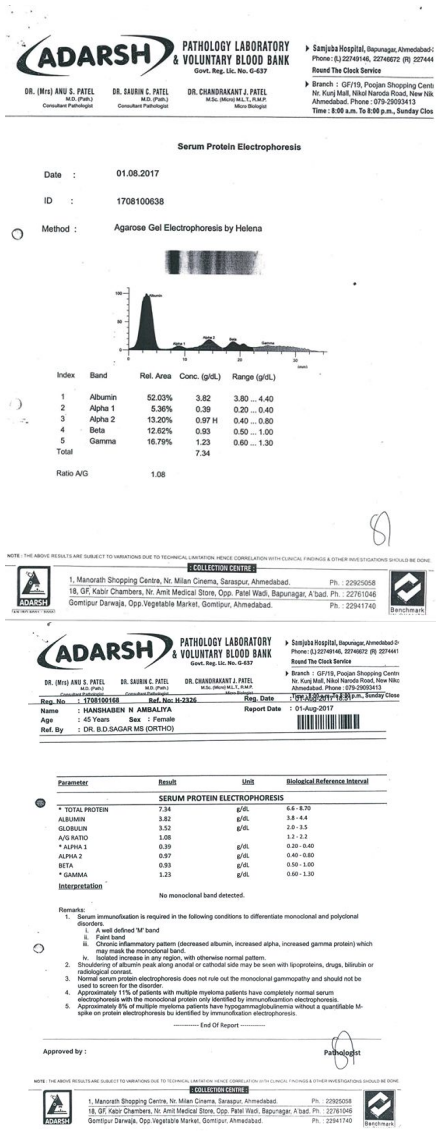
CXR -PA

*** USG Neck**

3.5 x 2.7mm sized Well Hypoecholc lesion noted with internal significant vascularity is noted in middle & Paramedeian portion in relation to interior portion of Thyroid gland - small Speckle of calcification



* Serum Protein Electrophoresis : No Myo Clonal Band



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Serum Protein Electrophoresis

Date : 01.08.2017
ID : 1708100638
Method : Agarose Gel Electrophoresis by Helena

Index	Band	Rel. Area	Conc. (g/dL)	Range (g/dL)
1	Albumin	52.03%	3.82	3.80 ... 4.40
2	Alpha 1	5.36%	0.39	0.20 ... 0.40
3	Alpha 2	13.20%	0.97 H	0.40 ... 0.80
4	Beta	12.62%	0.93	0.50 ... 1.00
5	Gamma	16.79%	1.23	0.60 ... 1.30
Total			7.34	
Ratio A/G		1.08		

NOTE : THE ABOVE RESULTS ARE SUBJECT TO VARIATIONS DUE TO TECHNICAL LIMITATION. HENCE CORRELATION WITH CLINICAL FINDINGS & OTHER INVESTIGATIONS SHOULD BE DONE.

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Reg. No : 1708100168 Ref. No: H-2326 Reg. Date : 01-Aug-2017 10:51
Name : HANSHABEN N AMBALIYA Report Date : 01-Aug-2017
Age : 45 Years Sex : Female
Ref. By : DR. B.D.SAGAR MS (ORTHO)

Parameter	Result	Unit	Biological Reference Interval
SERUM PROTEIN ELECTROPHORESIS			
* TOTAL PROTEIN	7.34	g/dL	6.6 - 8.70
ALBUMIN	3.82	g/dL	3.8 - 4.4
GLOBULIN	3.52	g/dL	2.0 - 3.5
A/G RATIO	1.08		1.2 - 2.2
* ALPHA 1	0.39	g/dL	0.20 - 0.40
ALPHA 2	0.97	g/dL	0.40 - 0.80
BETA	0.93	g/dL	0.50 - 1.00
* GAMMA	1.23	g/dL	0.60 - 1.30

Interpretation
No monoclonal band detected.

Remarks:
1. Serum immunofixation is required in the following conditions to differentiate monoclonal and polyclonal disorders.
   i. A well defined 'M' band
   ii. Faint band
   iii. Chronic inflammatory pattern (decreased albumin, increased alpha, increased gamma protein) which may mask the monoclonal band.
   iv. Isolated increase in any region, with otherwise normal pattern.
2. Shouldering of albumin peak along anodal or cathodal side may be seen with lipoproteins, drugs, bilirubin or radiological contrast.
3. Normal serum protein electrophoresis does not rule out the monoclonal gammopathy and should not be used to screen for the disorder.
4. Approximately 11% of patients with multiple myeloma patients have completely normal serum electrophoresis with the monoclonal protein only identified by immunofixamtion electrophoresis.
5. Approximately 8% of multiple myeloma patients have hypogammaglobulinemia without a quantifiable M-spike on protein electrophoresis bu identified by immunofixation electrophoresis.

---------- End Of Report ----------

Approved by : Pathologist

NOTE : THE ABOVE RESULTS ARE SUBJECT TO VARIATIONS DUE TO TECHNICAL LIMITATION. HENCE CORRELATION WITH CLINICAL FINDINGS & OTHER INVESTIGATIONS SHOULD BE DONE.

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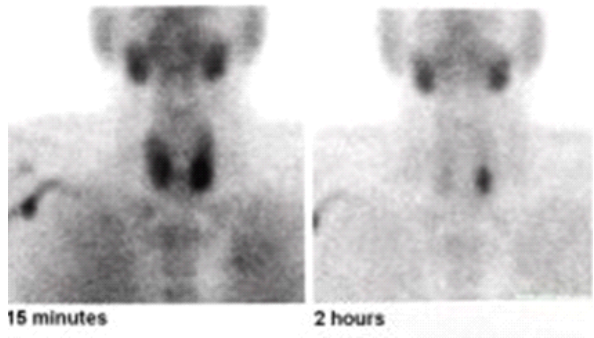
(UBJ - Urine for Bens Jones protein = Negative)

(4) Parathyroid Radioactive Scan – SESTAMBI SCAN - A single Parathyroid Gland Adenoma in Portion of LEFT Inferior Parathyroid Gland



*** CONCLUSION**:

Pathological Fracture lead to Comorbidity to patient – in relation to routine activities & strict bed rest – early diagnosis of Pathological # in main concept by Etological aspect – help the patient by Physical, Mental, Social stress relieve.

- Here main concept of Pathological # is due to Hyperparathyrodism which may be due to adenoma, malignancy.
- In this case study there is no significant h/ of weight loss
- Fever
- or Tumour Stigmata & absence of Tumour marker.
- Negative – Scan of Multiple Myeloma
- So possibility of Adenoma raised which proven by Biochemical value.
  ↑ ca = (15 g/dl)
  ↓ Phosphate = (2 g/dl)
- Positive : USG scan
- Positive : Radioactive
- Parathyroid Scan
- So relation
- Hyperparathyrodism lead to excessive Bone resorption Osteoporosis – Bone thin & lead to – Pathological Fracture in Trival Trauma.

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