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RESEARCH ARTICLE

BILATERAL ADRENAL METASTASIS PRESENTING AS ADRENAL INSUFFICIENCY.

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FDGPET-CT:FluoroDeoxyGlucose
 Positron Emission Tomography-
 ComputerisedTomography;ACTH:Adre-
 nocorticotrophic Hormone

Abstract

The adrenal glands are the fourth most common site of distant metastasis after lung,liver and bone. The incidence of adrenal metastasis is high in bronchogenic and breast carcinoma.On the other hand clinical adrenal de ficiency due to metastasis is very rare¹.In patients with cancer, adrenal insu fficiency may go unrecognized because the symptoms such as weakness, anorexia,nausea,vomiting ,orthostatic hypotension, electrolyte abnormalities are nonspecific and may be attributed to the underlying progressive malignancy. Moreover, terminal stage cancer patients can have symptoms that overlap with symptoms of adrenal insufficiency.We here report a case of 80 year old male, nonsmoker who presented with loss of more than 25 kg body weight in a span of two months. His plain x-ray chest was normal but computed tomography of abdomen re-vealed incidental bilateral large adrenal masses.His haematological and biochemical tests revealed no significant abnormality except low plasma protein and low albumen.Hormonal examination for assessment of corti-sol status confirmed primary adrenal insufficiency.PET-CT revealed the primary site to be in lungs.

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Case Report:-

An 80- year old male ,non-smoker, presented with weight loss of around 25 kg ,i.e, from 85 kg to 60 kg in a short period of only two months. His height was 180 cm,BMI was 18.51 kg/meter squared. It was associated with nausea ,vomiting ,loss of appetite ,malaise and dizziness on standing.His chest x-ray showed no obvious abnormality.Computerized tomography of abdomen revealed incidental bilateral adrenal masses.Examination of vitals, showed the patient to be emaciated , pigmentation at the periphery of tongue. Measured sitting blood pressure was 90/70 mm of Hg ,which fell to 70/50 after standing for three minutes.Other examination were non contributory.Haemato-Biochemical examination revealed low plasma protein and reduced serum albumen ,other reports being normal (Table1). 8 am Serum cortisol along with ACTH showed low cortisol and very much raised ACTH level confirming the diagnosis of primary adrenal insufficiency (Table 2).

Table 1:- Haemato-Biochemical features

Parameters			Results	Reference range	
Hb(gm/dl)		11.4	14	-16
	3)			
TLC(mm ³			7400	4000 - 11000	
Uric acid(mg/dl)			8.4	3	-6
Serum urea(mg/dl)			13	10	-40
Total protein(gm/dl)			5.6	> 7	
Albumen(gm/dl)			2.7	3.5	-4.5
ESR(ml/hr)			16	< 20	
Sodium(mEq/L)			144.9	135	-145
Potassium(mEq/L)			4.5	3.5 - 5	

Table 2:- Serum Cortisol with ACTH.

Parameters	Results	Reference range
Serum Cortisol(µgm/dl)	3.82	5 - 25
ACTH(pg/ml)	341	10 - 50

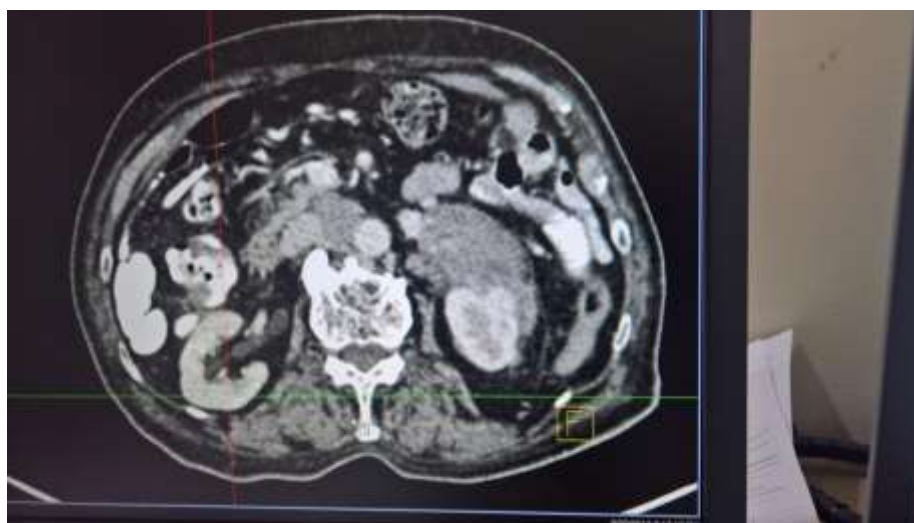
Figure 1:- Computerized tomography of adrenals: Bilateral adrenal mass

Figure 2:- FDGPET-CT adrenals: Bilateral mass

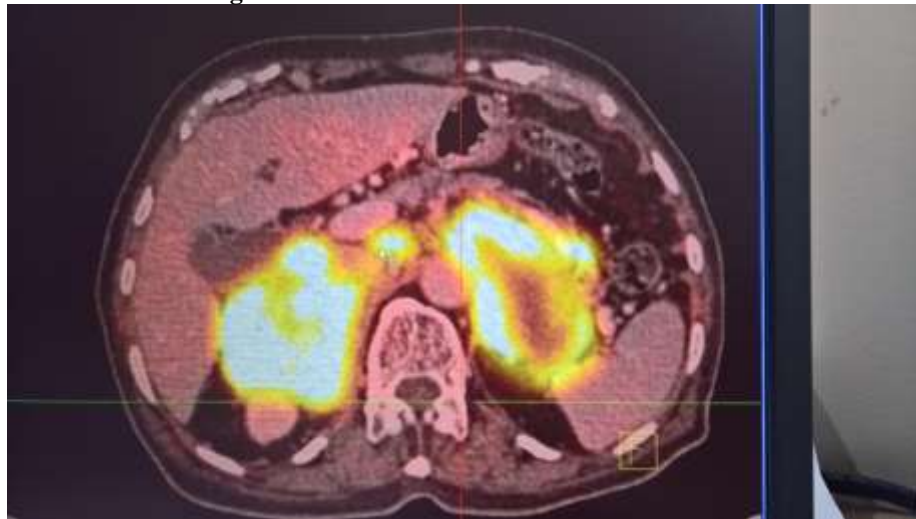
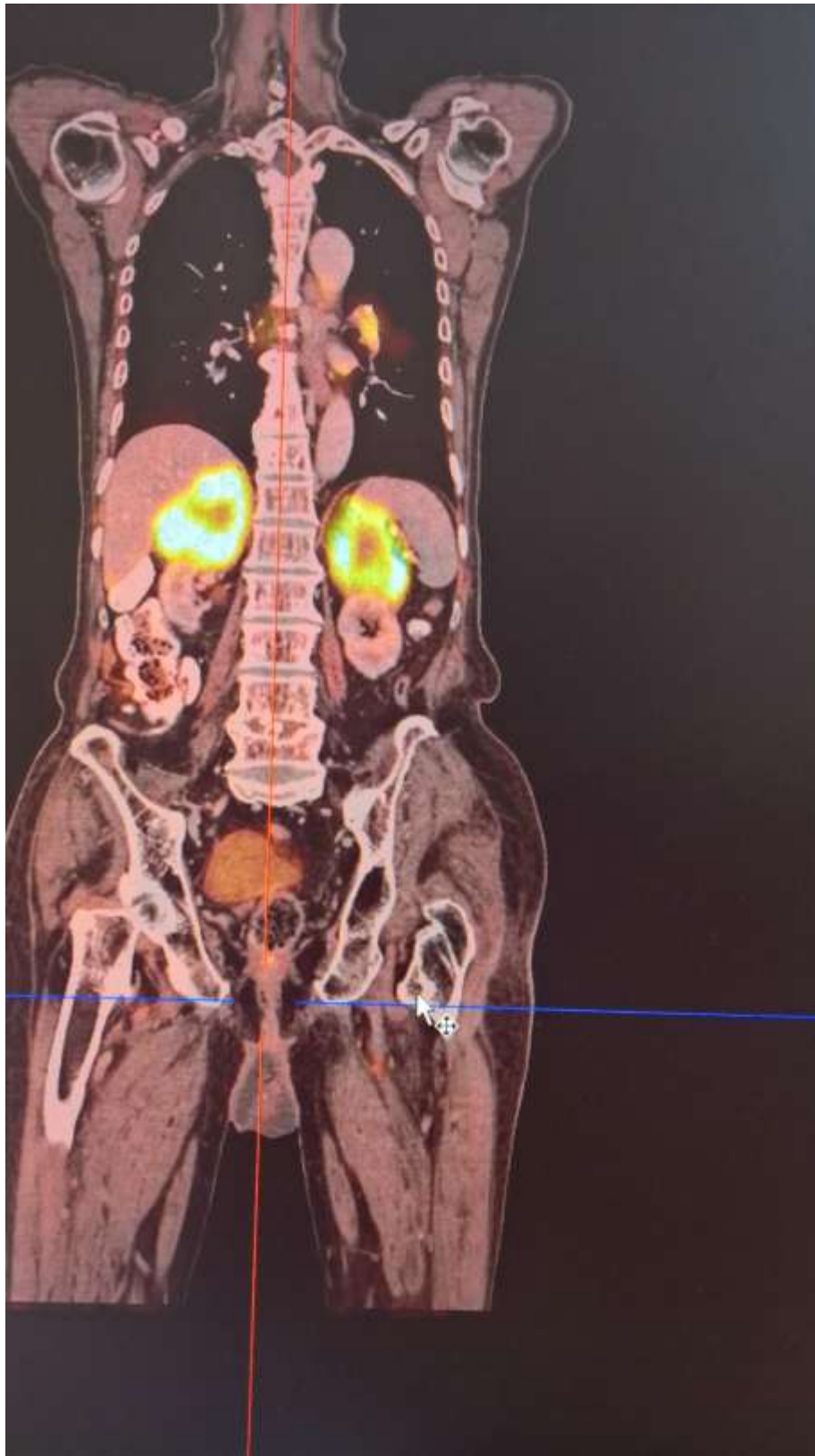


Figure 3:- FDGPET-CT Thorax: Showing primary in Lung



Figure 4:- FDGPET-CT showing bilateral adrenal metastasis and primary in lung,marked osteoporosis can also be noticed



Discussion:-

Bilateral adrenal metastasis are rare, and first manifestation from non small cell lung adenocarcinoma is also exceptional². For adrenal insufficiency to occur 90% of adrenals must be destroyed. In some of the cases adrenal insufficiency was found to be the presenting manifestation of occult malignancy³. Our case presented exactly in the same manner and the first presentation was incidental bilateral adrenal mass (Figure 3) which later on found to be having associated primary adrenal insufficiency. Most common primary site from which adrenal metastasis occurs is Lungs as shown in various studies^{4,5,6}.

Redman et al reported 33% of their patients with bilateral adrenal metastasis to be having adrenal insufficiency⁴. Lomte et al in their retrospective analysis of 70 patients with bilateral adrenal masses from western India could not find any of their metastatic cases to be associated with primary adrenal insufficiency. Hypocortisolism was more common in tuberculosis in their series. They advise while evaluating for bilateral adrenal masses age at presentation, presenting symptoms, lesion size, and biochemical features to be helpful in delineating varied underlying aetiologies⁶. Other sites from where metastasis to adrenals can occur are colon, stomach, ovaries, and advanced papillary thyroid cancer^{5,7,8}.

Lam et al in their study of 464 patients (288 men, 176 women) over a thirty year period with metastatic adrenal disease found frequency of adrenal metastasis by FNAC to be 33% and also found the lesions to be seen often in elderly patients, as we reported in our case. Lung was the most common primary site (Figure 3) and (Figure 4) (35%) followed by stomach (14%). Adrenal metastasis was bilateral in 49%⁹.

Conclusion:-

Bilateral adrenal metastasis associated with adrenal insufficiency seems to be rare. Diagnosis is difficult because of non specific and overlapping signs and symptoms. Primary site in most of the cases is lung as reported by various authorities. In our case it was an incidental finding and such cases of adrenal incidentaloma have been previously reported as well¹⁰. High index of suspicion is needed to diagnose primary adrenal insufficiency in patients of bilateral adrenal metastasis.

Strength of Study:-

PET-CT is highly sensitive and very specific method in detecting primary in case of Incidental finding of metastatic lesion such as in adrenal glands.

Weakness of the Study:-

Lung biopsy and microscopic diagnosis of lung malignancy was not done, thus relying fully on PET-CT.

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