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養和醫院 同位素及正電子掃描部

Department of Nuclear Medicine & Positron Emission Tomography

HONG KONG SANATORIUM & HOSPITAL

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2 VILLAGE ROAD, HAPPY VALLEY, HONG KONG

Name:	Alejo, Deidre Kay			Date:	29/1/2007
I.D. No.:	K503418(3)	Sex:	Female	Ref. Dr.:	Victor Tsang
Hosp. No.:	O.P.	Age:	49 Y	Fax:	2868 2920
Ward/Dept.:				Tel:	2868 2373

POSITRON EMISSION TOMOGRAPHY
(^{18}F-FDG ONCOLOGY)

History:

A 49 year-old lady patient of Dr. Victor Tsang had adenosquamous cancer of cervix. pT2pN1M0. Treated with THRSO laparoscopically in 11/2005 followed by post-op chemo-RT 5 courses and completed by 9/1/2006 and external RT. PET scan on 14/9/2006 showed increased metabolic activity in the left inferior sacral ala, mildly hypermetabolic nodule in the lateral part of anterior segment of LUL and worrisome of pulmonary metastasis. In the right lung, there were also three tiny eumetabolic subpleural nodules. The increased activity seen in the inferior sacral ala region was compatible with post-radiation insufficiency micro-fracture. Patient had been observed in last 3 months. PET scan is now performed for re-evaluation. Body weight, appetite, sleep, bowel movement and urination all normal. Vaginal discharge. Pain in the left sacral area has 99% resolved. No cough, hot flushes, no night sweat, and no epistaxis. Non-smoker. Drinks ~1 glass of wine per 2 weeks. No history of hepatitis or tuberculosis. Did not take any herbs, lingzhi or yunzhi. Family history for TB and cancer are negative.

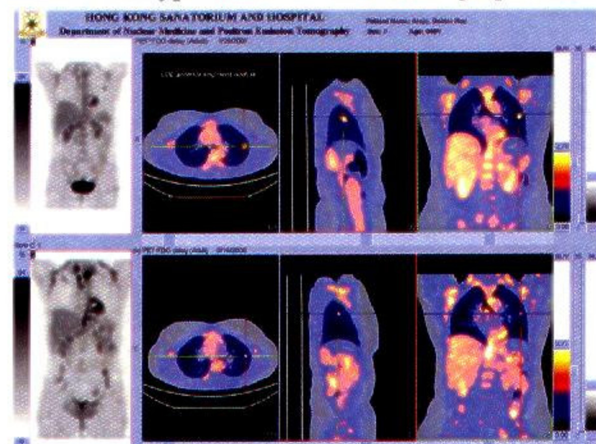
Procedures:

Fasting blood glucose at 14:25 was 5.1 mmol/l. 60 mg Spasmonal was given p.o. 15 min before ^{18}FDG. 11.1 mCi of ^{18}F-FDG was injected at15:08. PET-CT scan from base of skull to groin was performed at 15:58 (50 minutes after injection).

Findings:

SUVmax = Standardized Uptake Value Maximum
Liver tissue normal reference uptake has a SUVmax of 3.16 and delayed SUVmax of 2.40.

The study is compared with last PET scan of 14/9/2006. No abnormal activity can be seen in the remaining vagina. The uterus is not seen consistent with history of THRSO. No hypermetabolic metastatic lymph node can be seen in the pelvis and para-aortic abdominal lymph nodes. There is no abnormal bowel activity. Previous increased metabolic activity in the left inferior sacral ala has become less distinct and in the non-attenuation uncorrected images there is no significant increased metabolic activity to suggest active metastatic disease. The post-radiation insufficiency micro-fracture has healed.



In the lung, the mildly hypermetabolic roundish nodule in the subpleural part anterior segment of LUL has increased in size and metabolic activity and this is therefore consistent with metastatic lung nodule. In the right lung, the small subpleural eumetabolic activity in the lateral right lung apex still shows no increased metabolic activity but appears to have slightly increased in size. The subpleural nodule in the lateral part of anterior segment of RUL shows no significant interval change. The subpleural nodule in the anterior basal segment of RLL near the diaphragm also shows no interval significant change. However, a new subpleural nodule can now be seen in the lateral basal segment of RLL. This is also compatible with a pulmonary metastatic nodule.

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Similar to before are less prominent are bilateral symmetrical increased metabolic activity in the adipose tissue of bilateral shoulder, bilateral supraclavicular fossae, bilateral subclavian fat, perivascular fat in the thoracic inlet. These are consistent with brown fat artifact.

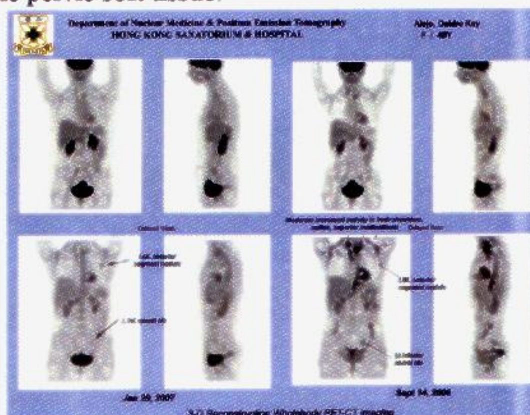
There is no abnormal uptake in the nasopharynx. There is no hypermetabolic lesion seen in the supraclavicular and cervical lymph nodes. The cardiac muscle shows normal increased uptake. The liver shows uniform uptake without any focal area of hypermetabolism. The adrenal glands appear normal. The bowel shows some physiological activity in the muscle of the intestine. There is no abnormal pelvic uptake. The pancreas shows normal activity. Both groins appear normal with no abnormal lymphadenopathy.

Functional parameters to compare these 2 studies are tabulated below:

Alejo Deidre Kay	in cm				SUVmax	in cm				SUVmax	SUVmax
Site	X	Y	Z	SUVmax	Lesion glycolysis	X	Y	Z	SUVmax	Lesion glycolysis	Change
	Current Date 29/1/2007					Last Date 14/9/2006					
Liver				3.16					3.16		
LUL anterior segment nodule	1.2	1.6	1.2	2.99	4.4	0.5	0.5	0.5	1.13	0.1	4777.1%
Subpleural Rt apex	0.3	0.4	0.5	1.40	0.1	0.3	0.3	0.3	0.67	0.0	364.3%
Subpleural lateral RUL anteior seg	0.4	0.3	0.5	0.92	0.0	0.3	0.4	0.3	0.83	0.0	84.7%
Subpleural lateral RLL anterior basal seg	0.3	0.5	0.3	0.80	0.0	0.3	0.5	0.3	0.66	0.0	21.2%
New											
Subpleural lateral basal segment RLL	0.9	1.3	1.0	1.21	1.1						
Total Lesion Glycolysis (TLG)					**5.6**					**0.1**	**3906.3%**
Lt inferior sacral ala	0.5	1.6	1.5	2.36	1.8	1.8	2.1	2.7	2.90	18.7	-90.4%
Vagina	1.5	1.7	1.3	2.95	6.2	1.5	1.7	1.3	3.07	6.4	-3.9%

Impression:

1. Status post THRSO with no visible node in the vaginal area or in the pelvic soft tissue.
2. The hypermetabolic nodule seen in the LUL anterior segment subpleural area has increase in size and metabolic activity. This is now compatible with a metastatic pulmonary nodule until proven otherwise. Differentiation diagnosis would include active granulomatous disease.
3. The small nodule seen in the subpleural right lung apex shows also a mild increase in size and a new nodule appearing in the subpleural lateral basal segment of RLL. These lesions can be consistent with metastatic nodules even though the metabolic activity may not be elevated because of partial volume effect. Another 2 nodules seen in the subpleural anterior basal segment of RLL and also in the lateral area of anterior segment of RUL though shows no significant interval change, probably fall into the same category of metastatic nodule.
4. Abnormality seen in the left inferior sacral area has resolved and consistent with previous impression of post-radiation micro-fracture healed.



Thank you very much, Dr. Tsang, for your referral.

David W Yeung, *MBBS(HK), DABNuM, DABPed*
Consultant in Nuclear Medicine

Total lesion glycolysis (TLG) = lesion width x lesion height x lesion depth x SUVmax, being normalized by liver activity
Change in total lesion glycolysis = 100% x (new TLG – old TLG)/old TLG, being normalized by liver activity

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