

Determination of Chest wall invasion in lung Cancer by CT-scan procedure

Fournier Ian¹, Abdelnour Etienne¹, Soubeyran Vincent², Mohamed Ehab Kamel², Christodoulou Michel¹

1.Service de chirurgie générale, vasculaire et Thoracique; Hôpital du Valais (RSV), Sion
2.Service de Radiologie; Hôpital du Valais (RSV), Sion

Introduction:

R0 resection is the goal in lung cancer surgery. If tumor size is less than 7 cm, parietal involvement rises the TNM staging from T2b to T3¹. Moreover, tumor invading the chest wall remains surgically challenging with the supplementary need of parietal resection. Thoracodynia is the key symptom determining tumoral invasion of the chest wall but in front of suspect images more investigation may be helpful to determine the need of parietal resection even more when there's no thoracodynia.

Method:

We report the case of a 60 years old female, long-date smoker, who presented a suggestive image at the CT-scan of chest wall invasion of a postero-apical mass. We proposed a simple, CT-scan based procedure that could rule out chest wall invasion. This procedure consisted in turning the patient from dorsal to ventral decubitus on the CT-scan table.

Results:

A gravitational displacement of the patient's mass was observed, suggesting that the chest wall was not invaded by the tumoral process (Fig 1 & 2). After complete staging the patient, underwent surgical resection, confirming as suggested on the CT-scan, no chest wall invasion. The final histological diagnosis was a pT2b (5.5cm) pN0 cM0 R0 adenocarcinoma.

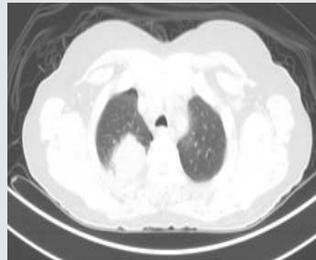


Fig1: dorsal decubitus inspirium



Fig2: ventral decubitus inspirium

Comment:

The physiological feature of the lung parenchyma authorizes the near tumor tissue to fill up with air during inspirium what enhances the parietal margin. Associated with the gravitational effect of the masse it's self on the surrounding lung tissues when displacing the patient, it's then possible to demonstrate the absence of parietal invasion.

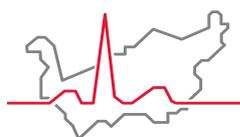
As other example we present the image (Fig 3) of a lateral decubitus thoracic CT-scan showing no displacement of the mass attesting it's parietal adhesion.



Fig3: lateral decubitus inspirium

Conclusion:

The simplicity and easy reproducibility of this procedure appears as an interesting tool in preoperative assessment for resectable lung masses. The literature presents other methods like dynamic MRI² or dynamic Ultrasound³ to asses parietal invasion, and both with quite high sensitivity and specificity. But these are high demanding processing. We assume that this procedure even with the side effect of radiation exposure is a simple, quick and effective procedure to rule out chest wall invasion.



Hôpital du Valais
Spital Wallis



Unité de Chirurgie Thoracique
hôpital du Valais

L'être humain au centre.

1:TNM AJCC 7th Edition

2 S Akat et al. Evaluation of chest wall invasion by lung cancer using respiratory dynamic MRI *Journal of medical imaging and radiation oncology* 2008; 52:36-39

3 Suzuki N et al tumor invasion of the chest wall in lung cancer; diagnosis with US *Radiology* 1993;187:39-42

www.hopitalvs.ch | www.spitalvs.ch