



**PROGNOSTIC IMPLICATION OF ISOLATED  
PULMONARY NODULES IN PATIENTS WITH A HISTORY  
OF BREAST CANCER**

# introduction

▶ malignant lung nodules   Synchronous or metachronous

▶ This increased incidence relates to :


better follow up clinics,

1/ computed tomography (CT)

2/ Positron emission tomography (PET) scanning

▶ incidence of metastatic lesions varied from 34 to 75%

primary lung cancer	benign lesions
12 to 48%	14 to 18%

▶ Treatment : surgery !  limited resections in cases of solitary metastases

▶ Aim OF STUDY 

to evaluate the role of surgery in the management of malignant solitary pulmonary nodules in patients with breast cancer

 extended resections with lymphadenectomy if the lesion is a primary lung cancer

# MATERIAL AND METHODS

The Shanghai Chest Hospital

January 2010 to April 2018

- ▶ Cases : breast cancer patients →
- ▶ Data were collected by review of medical records

✓ included :  
underwent surgical resection of isolated neoplastic pulmonary nodules defined as cancer nodules with a diameter of 3 cm or less and surrounded by normal lung parenchyma

✓ Excluded :

- Patients with nodules with a diameter greater than 3 cm
- More than one nodule
- satellite nodules
- Patients with documented other sites of metastatic disease of their breast cancer

Preoperative staging	<ul style="list-style-type: none"><li>• CT of the chest and abdomen</li><li>• PET was not performed routinely</li><li>• Histological analysis using morphology and thyroid transcription factor-1 (TTF-1) was used to differentiate between (PLC) and (MBC)</li></ul>
Follow up	<ul style="list-style-type: none"><li>• standard chest radiographs</li><li>• often CT scanning</li><li>• By telephone contact</li></ul>

- ▶ DFS → from the date of surgery until the date of first recurrence defined either as proven metastasis or CT consistent with metastatic disease
- ▶ OS → from the date of operation until the date of death from all causes or the date last seen alive
- ▶ A comparison between the histopathological characteristics of the resected lesions (PLC vs MBC) and surgical outcome was obtained.

# Results

## Patients demographics

- ▶ Totally : 153 cases by ct or pet/ct scan

$$153 - 12 - 25 - 18 \approx 90$$

pathologically confirmed benign lung diseases

Multiple pulmonary lesions

pulmonary nodules > 3 cm

synchronous	11
metachronous	79

**Table 1** Clinical characteristic of 90 patients with malignant pulmonary nodules

characteristic	PLC group	MBC group	P value
Gender			N/A
Female	63 (100.0%)	27 (100.0%)	
Age (years)	55.81 ± 8.94	53.37 ± 11.67	0.263
DFI (months)	1.50 ± 0.50	56.25 ± 43.48	<0.001
Location	31	16	0.382
Ipsilatera	32	11	
Contralateral			
pStage of breast cancer	25 (39.7%)	1 (3.7%)	0.003
stage I	29 (46.0%)	20 (74.1%)	
stage II	9 (14.3%)	6 (22.2%)	
stage III			

PLC primary lung cancer, MBC metastatic breast cancer, DFI disease-free interval

- ✓ The pulmonary nodules were located on the same side of breast cancer in 31 cases in PLC group and 16 cases in MBC group.
- ✓ Higher rate of stage II and III breast cancers were detected in MBC group
- ✓ All nodules were adenocarcinomas
- ✓ In patients who had intraoperative nodal staging, 7/55 of those with PLC had N1 disease while 3/6(50%) of those with MBC had involvement of either the bronchopulmonary or mediastinal nodes.

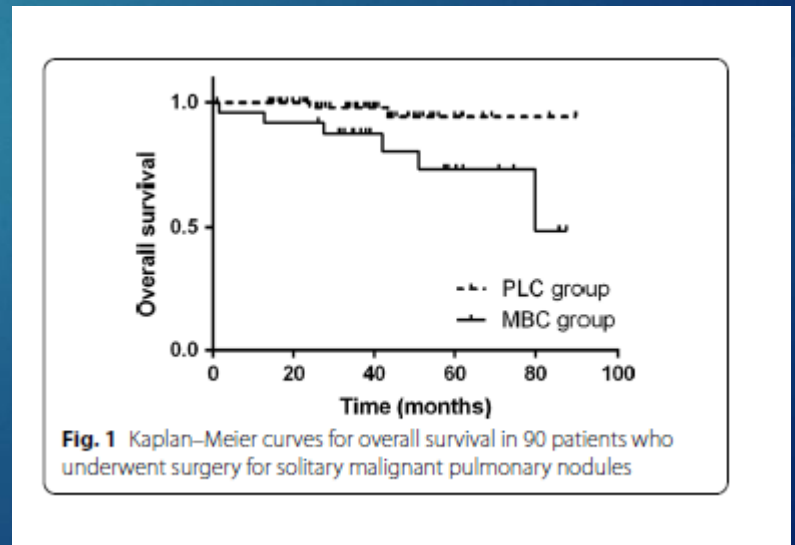
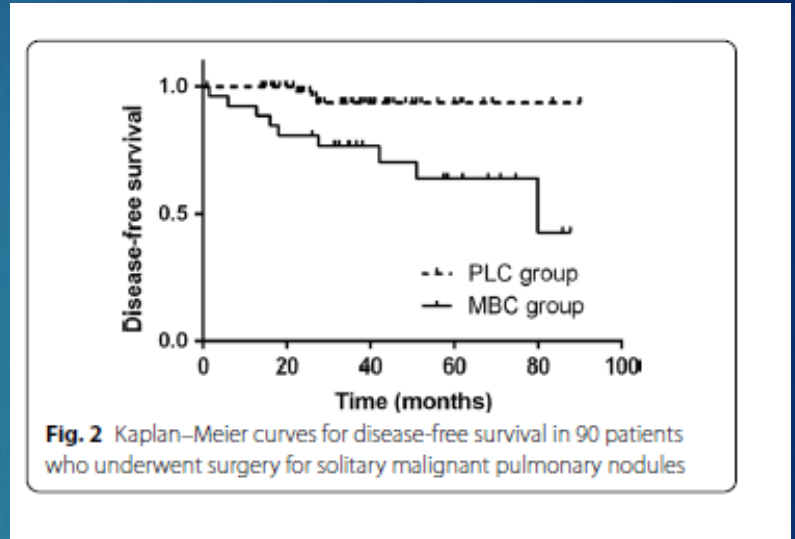
**Table 2** Perioperative results and pathological characteristics between PLC and MBC group

characteristic	PLC group	MBC group	P value
Extent of resection			N/A
Limited resection	8 (12.7%)	21 (77.8%)	< 0.001
Lobectomy	55 (87.3%)	6 (22.2%)	
Size (cm)	1.63 ± 0.69	1.57 ± 0.72	0.691
pN stage of patients received LND	48	3	0.019
N0	7	3	
N1			

PLC primary lung cancer, MBC, metastatic breast cancer, LND lymph node dissection



# Overall and disease free survival after surgery

	PLC	MBC
Overall Survival(os)	94.2%	72.8%
mean survival	86.89	70.48
overall disease free survival (DFS)	93.6%	63.9%,



# Discussion

- ▶ The majority of pulmonary nodules in breast cancer patients are pulmonary metastases
- ▶ the prevalence of primary lung cancer following breast cancer is significant
- ▶ According to this study's results, breast cancer patients with PLC had a mean OS time of  $86.89 \pm 2.16$  months and a 5-year survival rate of 94.2%, which was exciting.
- ▶ The role of surgery for pulmonary metastasis of breast cancer is unclear
- ▶ Systemic chemotherapies including anti-HER2 treatment are usually applied
- ▶ Some clinical studies have suggested that surgical resection of pulmonary metastases could achieve the satisfactory outcomes
- ▶ Because of high incidence rate of PLC and MBC in breast cancer patients, it is suggested to carry out routine chest CT scan for these patients
- ▶ surgery, especially video-assisted thoracic surgery should be considered as an option for the diagnosis

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- ▶ Our results indicated that surgery was essential for patients with primary lung cancer after breast cancer. For patients with isolated pulmonary metastasis from breast cancer, surgical resection was approved as well.
  - ▶ Compared with limited resection, lobectomy may lead to worse spirometry, which is not recommended for metastatic nodules. Therefore MWA seems to be a good alternative to lobectomy.



# Conclusions

- ▶ Surgical outcomes of isolated pulmonary nodules in patients with breast cancer were favorable. Surgery should be considered as an option not only for the diagnosis but also for the treatment for breast cancer patients with isolated pulmonary nodules.

# ممنون از توجهتون

فریادهای ما بلندتر از اعمال ماست ، شمشیرهای ما از خود ما بلندتر است و این فاجعه‌ی ماست  
خلاصه اینکه ما شغل تمدن می پوشیم اما روح ما در عصر سنگ زندگی میکند.

نزار توفیق قبانی