

**Supplemental Table 1 Pulmonary benign metastatic leiomyoma case reports**

Refere nce NO.	Author s	Year	Radiol ogy	Respirat ory clinical manifest ation	Final diagn osis	Treatm ent	Follow-u p	Uter ine leio myo m a	Myom ectomy or hystere ctomy
1	Barnes <i>et al</i> <sup>[1]</sup>	1973	Multipl e bilatera l pulmo nary nodule s	Cough, sputum, Haemop tysis, dyspnoe	N/A	Observ ation	Stable	Y	Myome ctomy
2	Lipton <i>et al</i> <sup>[2]</sup>	1987	Multipl e bilatera l pulmo nary nodule s	Dyspnea	Trans bronc hial biops y	Bilatera l salping o-ooph orecto my, medro xyprog esteron e	Stable, 0.75 mo	Y	Hyster ectomy
3	Parenti <i>et al</i> <sup>[3]</sup>	1992	Multipl e bilatera l pulmo	Asympt omatic	Surge ry	Observ ation	Progress, 10 mo	Y	Hyster ectomy

			nary nodule s Multipl e bilatera l						
			pulmo nary nodule s Multipl e bilatera l	Dyspnea	Surge ry	Tamoxi fen	Progress, 2 mo	Y	Hyster ectomy
4	Shin <i>et al</i> <sup>[4]</sup>	1996	pulmo nary nodule s Multipl e bilatera l	Dyspnea	Surge ry	Bilatera l oophor ectomy	N/A	Y	Hyster ectomy
			pulmo nary cysts Multipl e bilatera l						
5	Maredi <i>et al</i> <sup>[5]</sup>	1998	pulmo nary nodule s Multipl e bilatera l	Fever	Surge ry	Observ ation	Progress, 30 mo	Y	Hyster ectomy
			pulmo nary nodule s Multipl e bilatera l			Observ ation, underg one	Decrease, 12 mo	Y	Hyster ectomy
6	Arai <i>et al</i> <sup>[6]</sup>	2000	pulmo nary nodule s Multipl e bilatera l	Asympt omatic	Surge ry	Observ ation, underg one	Decrease, 12 mo	Y	Hyster ectomy

			pulmonary nodule s Solitary			menopause			
7	Lawson et al <sup>[7]</sup>	2003	pulmonary nodule Multiple	Chest pain	Surge ry	N/A	N/A	Y	Hysterectomy
8	Goyle et al <sup>[8]</sup>	2003	pulmonary nodule s Multiple bilateral	Cough, sputum, Haemoptysis, dyspnoea	Surge ry	Medroxyprogesterone, only 3 mo	Stable, 3 mo	Y	Hysterectomy
9	Nardon et al <sup>[9]</sup>	2003	pulmonary nodule s Multiple bilateral	Dyspnoea		Medroxyprogesterone, gnrh agonist, left salpingo-oophorectomy	Stable, 32 mo	Y	Hysterectomy
10	Funakoshi et al <sup>[10]</sup>	2004	pulmonary nodule s Multiple bilateral	Asymptomatic	Surge ry	Observation	Stable, 27 mo	Y	Hysterectomy

11	Wentling et al <sup>[11]</sup>	2005	Multiple bilateral pulmonary nodules	Dyspnoea	Surge	Megestrol therapy, gnrh agonist (dismissed), oophorectomy	Stable, 3 yr	Y	Hysterectomy
12	Yamazaki <sup>[12]</sup>	2005	Multiple bilateral pulmonary cysts	Dyspnoea	Surge	Hormonal therapy	Stable	Y	N
13	Jo et al <sup>[13]</sup>	2006	Multiple bilateral pulmonary nodules	Fever	Surge	Bilateral oophorectomy, tamoxifen	Decrease	Y	Hysterectomy

14	Egberts <i>et al</i> <sup>[14]</sup>	2006	Multiple bilateral pulmonary nodules	Asymptomatic	N/A	Gnrh agonist	Stable, 36 mo	Y	Myome ctomy
			Multiple unilateral pulmonary nodules	Chest pain	Surge ry	N/A	N/A	Y	N/A
15	Patton <i>et al</i> <sup>[15]</sup>	2006	Multiple bilateral pulmonary nodules	Cough	Surge ry	N/A	N/A	N/ A	N/A
			Multiple bilateral pulmonary nodules	Asymptomatic	Surge ry	N/A	N/A	Y	N/A

			s						
16	Kwon <i>et al</i> <sup>[16]</sup>	2006	Multiple bilateral pulmonary nodules	Cough	Surge ry	Anti-h ormon al therap y	N/A	Y	Hyster ectomy
17	Arif <i>et al</i> <sup>[17]</sup>	2006	Multiple bilateral pulmonary nodules	Back Pain	Surge ry	Gnrh agonist	Decrease	Y	Myome ctomy
18	Sapmaz <i>et al</i> <sup>[18]</sup>	2008	Multiple unilateral pulmonary nodules	Chest pain, cough, pneumot horax	Surge ry	N/A	Stable, 12 mo	Y	Hyster ectomy
19	Lee <i>et al</i> <sup>[19]</sup>	2008	Multiple bilateral	Asympt omatic	Surge ry	Observ ation	Stable, 13 mo	Y	Hyster ectomy

			l pulmo nary nodule s Multipl e bilatera						
20	Rao <i>et al</i> <sup>[20]</sup>	2008	l pulmo nary nodule s	Asymptomatic	Surge	Observation	Stable, 18 mo	Y	Hysterectomy
						Bilatera l salpingo-ooph			
21	Nasu <i>et al</i> <sup>[21]</sup>	2009	l pulmo nary nodule s	Asymptomatic	Surge	orectomy, hormonal therapy	Stable, 15 mo	Y	Myomectomy
22	Di Scioscio <i>et al</i> <sup>[22]</sup>	2009	l pulmo nary nodule s	Chest pain	Surge	Observation	N/A	Y	Hysterectomy

23	Tatebe <i>et al</i> <sup>[23]</sup>	2009	Multiple bilateral pulmonary nodules	Cough, fever	Surge Observation	Stable, 84 yr	Y	Myome ctomy
24	Moon <i>et al</i> <sup>[24]</sup>	2009	Multiple bilateral pulmonary nodules	Pleural effusion, fever, cough, chest pain	Surge Observation	Stable, 6 mo	Y	Hyster ectomy
25	Lin <i>et al</i> <sup>[25]</sup>	2010	Multiple bilateral pulmonary nodules	Cough  N/A	Surge Observation	Stable	Y	Hyster ectomy  Myome ctomy

26	Lim <i>et al</i> <sup>[26]</sup>	2011	Multiple bilateral pulmonary nodules	Asymptomatic	Surge	salpingo-oophorectomy	Stable	Y	Hysterectomy
27	Steiner <sup>[27]</sup>	1939	Multiple bilateral pulmonary nodules	Dyspnea, cough	examined	N/A	Dead	Y	N
28	Aboualfa <i>et al</i> <sup>[28]</sup>	2011	Multiple bilateral pulmonary nodules	N/A	Surge	N/A	N/A	Y	Hysterectomy

29	Mizuno <i>et al</i> <sup>[29]</sup>	2011	Multiple bilateral pulmonary nodules	Cough	CT-guided percutaneous needle biopsy	Gnrh agonist	Stable, 51 mo	Y	Hysterectomy
30	Naito <i>et al</i> <sup>[30]</sup>	2011	Solitary pulmonary nodule	Chest pain	Surge	Observation	Stable, 48 mo	Y	Hysterectomy
31	Goto <i>et al</i> <sup>[31]</sup>	2012	Multiple bilateral pulmonary nodules	Asymptomatic	Surge	Observation	Stable, 18 mo	Y	Myomectomy
32	Wongripuemtet <i>et al</i> <sup>[32]</sup>	2012	Multiple bilateral pulmonary nodules and cysts	Asymptomatic	N/A	Tamoxifen, Bilateral oophorectomy	Stable, 36 mo	Y	Myomectomy

33	Rege <i>et al</i> <sup>[33]</sup>	2012	Multiple bilateral pulmonary nodules	N/A	Surge	Bilateral salpingo-oophorectomy	Stable, 12 mo	Y	Hysterectomy
34	Nakajo <i>et al</i> <sup>[34]</sup>	2012	Multiple bilateral pulmonary nodules	Asymptomatic	CT-guided percutaneous needle biopsy	Observation	Stable, 12 mo	Y	Hysterectomy
35	Taveira-dasilva <i>et al</i> <sup>[35]</sup>	2012	Multiple bilateral pulmonary cysts	Pneumothorax, dyspnea	Surge	Leuprolide acetate	Decrease, 12 mo	Y	Hysterectomy
36	Fu <i>et al</i> <sup>[36]</sup>	2012	Multiple bilateral pulmonary nodules	N/A	Surge	Mifepristone	Stable	Y	Hysterectomy

s

37	Okabe <i>et al</i> <sup>[37]</sup>	2013	Multiple bilateral pulmonary nodules and cysts	Pneumothorax	Surge	Leuprolide acetate	Decrease, 7 mo	Y	Myomectomy
38	Ki <i>et al</i> <sup>[38]</sup>	2013	Solitary pulmonary nodules	Cough, hemoptysis	Surge	Observation	Stable, 192 mo	Y	N
39	Mogi <i>et al</i> <sup>[39]</sup>	2013	Multiple bilateral pulmonary nodules	Asymptomatic	Surge	GnRH agonist	Decrease, 8 mo	Y	Myomectomy
40	Medarov <i>et al</i> <sup>[40]</sup>	2018	Multiple bilateral pulmonary	Asymptomatic	Surge	Observation	Stable, 12 mo	Y	Hysterectomy

41	Tang <i>et al</i> <sup>[41]</sup>	2019	Multiple bilateral pulmonary nodules and cysts	Chest tightness, dyspnea, pneumothorax	Surge	N/A	N/A	Y	Hysterectomy	
42	Loukeri <i>et al</i> <sup>[42]</sup>	2014	Multiple bilateral pulmonary nodules	Cough	Surge	N/A	Stable	Y	Hysterectomy	
43	Taftaf <i>et al</i> <sup>[43]</sup>	2014	Multiple bilateral pulmonary nodules	A mass and multiple	Dyspnoea	Surge	N/A	N/A	Y	Hysterectomy

			Multiple bilateral Cough, Cavitary chest pain, pulmonary dyspnea nodules	Surge ry	N/A	N/A	N	N
44	Orejola <i>et al</i> <sup>[44]</sup>	2014	Multiple bilateral Asymptomatic pulmonary nodules	Surge ry	Bilateral salpingo- oophorecto- my	Stable	Y	Hyster- ectomy
45	Tohya <i>et al</i> <sup>[45]</sup>	2014	Multiple bilateral Asymptomatic pulmonary nodules	CT-g uided percutaneo- us needle biopsy	Observation	Stable, 60 mo	Y	Hyster- ectomy
46	Lin <i>et al</i> <sup>[46]</sup>	2014	Multiple bilateral Asymptomatic pulmonary nodules	Surge ry	Observation	N/A	Y	Hyster- ectomy

47	Ağaçkiran <i>et al</i> <sup>[47]</sup>	2014	Multiple bilateral pulmonary nodules	Back Pain	Surge	Salpingo-oophorectomy	Stable, 12 Y	Hysterectomy
48	Chen <i>et al</i> <sup>[48]</sup>	2014	Multiple bilateral pulmonary nodules	Chest tightness, dyspnea	Surge	Tamoxifen	Stable, 4 Y	Myomectomy
49	Chen <i>et al</i> <sup>[49]</sup>	2014	Multiple bilateral pulmonary nodules and masses	Asymptomatic	Surge	Observation	Stable, 12 Y	Hysterectomy

50	Yu <i>et al</i> <sup>[50]</sup>	2015	Multiple bilateral pulmonary nodules	Chest pain	Surge	Bilateral salpingo-oophorectomy	Stable, 8 mo	Y	Hysterectomy, Myomectomy
51	Jolissaint <i>et al</i> <sup>[51]</sup>	2015	Multiple bilateral pulmonary nodules and cysts	Dyspnea, cough	Surge	Leuprolide acetate	Stable	Y	Hysterectomy
52	Ma <i>et al</i> <sup>[52]</sup>	2015	Multiple bilateral pulmonary nodules	Asymptomatic	Surge	Observation	Stable, 5 mo	Y	Myomectomy
53	Wei <i>et al</i> <sup>[53]</sup>	2015	Multiple bilateral	Asymptomatic	Surge	Observation	Stable, 24 mo	Y	Hysterectomy

54	Grafino <i>et al</i> <sup>[54]</sup>	2016	Multiple bilateral pulmonary nodules	Dyspnea on exertion	Surge ry	Goserelin in acetate, gnrh agonist	Decrease, 12 mo	Y	Hyster ectomy
55	Raś <i>et</i> <i>al</i> <sup>[55]</sup>	2016	Multiple bilateral pulmonary nodules	Asymptomatic	Surge ry	N/A	N/A	Y	Hyster ectomy
56	Wiencek-Weiss <i>et</i> <i>al</i> <sup>[56]</sup>	2016	Multiple bilateral pulmonary nodules	Asymptomatic	Surge ry	Gnrh agonist -Diphenerline	Stable, 6 mo	Y	Myome ctomy

57	Alimi <i>et al</i> <sup>[57]</sup>	2016	Multiple bilateral pulmonary cysts	Cough	Surge ry	N/A	N/A	Y	Myome ctomy
58	Park <i>et al</i> <sup>[58]</sup>	2017	Multiple bilateral pulmonary nodule s	N/A	N/A	Bilatera l salping o-ooph orecto my	Decrease, 10 mo	Y	Hyster ectomy , Myome ctomy
59	Rizzo <i>et al</i> <sup>[59]</sup>	2017	Multiple bilateral pulmonary nodule s and masses	Dyspnea	CT-g uided percu taneo us needl e biops y	N/A	N/A	Y	Hyster ectomy
60	Asumu <i>et al</i> <sup>[60]</sup>	2017	Multiple bilateral pulmonary nodule	Pleural effusion , dyspnea, cough	Surge ry	Observ ation	Progress, 6 mo	Y	Hyster ectomy

s

61	Yoon <i>et al</i> <sup>[61]</sup>	2017	Multiple bilateral pulmonary nodules	Cough, Dyspnea	CT-guided percutaneous transdermal patch biopsy	Progress, 33 mo	Y	Hysterectomy, Myomectomy	
62	Choe <i>et al</i> <sup>[62]</sup>	2017	Multiple bilateral pulmonary cystic nodules	Cough, dyspnea	Surge	Observation	Stable, 72 mo	Y	Hysterectomy
63	Lee <i>et al</i> <sup>[63]</sup>	2017	Multiple bilateral pulmonary nodules and cavitati	Asymptomatic	CT-guided percutaneous needle biopsy	Gnrh agonist	Decrease, 30 mo	Y	Hysterectomy

ons

64	Pastré <i>et al</i> <sup>[64]</sup>	2017	Multiple bilateral pulmonary nodules and masses	Pleural effusion, dyspnea	Surge ry	Aroma tase inhibit ors	Progress, 45 mo, then stable	Y	Hyster ectomy
65	Efared <i>et al</i> <sup>[65]</sup>	2017	Solitary pulmonary mass	Cough, dyspnea, chest pain	Surge ry	Aroma tase inhibit or	Stable, 6 mo	Y	Hyster ectomy
66	Raposo <i>et al</i> <sup>[66]</sup>	2018	Multiple bilateral pulmonary nodules s	Asymptomatic	CT-guided percutaneous needle biopsy	Bilateral Salpingoophorectomy, aromatase inhibitor	N/A	Y	Hyster ectomy

			Multiple bilateral pulmonary nodules	Cough	CT-guided percutaneous needle biopsy	Bilateral Salpingo-oophorectomy	Stable, 6 mo	Y	Hysterectomy
67	Jo <i>et al</i> <sup>[67]</sup>	2018	Multiple bilateral pulmonary nodules	Cough	Surge resection	Observation	Stable, 84 mo	Y	Hysterectomy
68	Bakken <i>et al</i> <sup>[68]</sup>	2018	Multiple bilateral pulmonary nodules	Asymptomatic	CT-guided percutaneous needle biopsy	Bilateral salpingo-oophorectomy, aromatase inhibitor	Stable, 24 mo	Y	Hysterectomy
69	Khan <i>et al</i> <sup>[69]</sup>	2018	Multiple bilateral pulmonary nodules	Chest pain, dyspnea	Surge resection	Aromatase inhibitor	Decrease, 3 mo, then stable 9 mo	Y	Hysterectomy

			pulmo nary nodule s						
			Multipl e bilatera			Gnrh agonist			
70	Sõritsa <i>et al</i> <sup>[70]</sup>	2018	l pulmo nary nodule s	Dyspnea	Surge ry	' Bilatera l oophor ectomy	Decrease, 12 mo	Y	Hyster ectomy
			Multipl e bilatera		Post morte				
71	Ofori <i>et al</i> <sup>[71]</sup>	2019	l pulmo nary nodule s	Cough, dyspnea	m exami natio n	N	Dead	N/ A	N
			Multipl e bilatera		CT-g uided percu taneo				Hyster ectomy
72	Yuan <i>et al</i> <sup>[72]</sup>	2019	l pulmo nary nodule s	Chest tightness	us needl e biops y	Gnrh agonist	Stable, 7 mo	Y	, Myome ctomy

73	Huang <i>et al</i> <sup>[73]</sup>	2019	Multiple unilateral pulmonary nodules	Asymptomatic	Surge	Observation	Stable, 18 mo	Y	Hysterectomy
74	Sala <i>et al</i> <sup>[74]</sup>	2020	Multiple bilateral pulmonary nodules and cysts	Chest pain	CT-guided percutaneous needle biopsy	N/A	N/A	Y	Hysterectomy
75	Zhang <i>et al</i> <sup>[75]</sup>	2019	Multiple bilateral cavitary pulmonary nodules	Cough, dyspnea	Surge	Tamoxifen	N/A	Y	N

---

---

76	XIAO <i>et al</i> <sup>[76]</sup>	2019	Multiple unilateral pulmonary nodules	Cough, sputum, Haemoptysis	CT-guided percutaneous CT-guided biopsy	Observation	Stable, 10 mo	Y	N
----	--------------------------------------	------	---------------------------------------	----------------------------	---	-------------	---------------	---	---

---

CT: Computed tomography; N/A: Data not available; gnrh: Gonadotrophin-releasing hormone; Y: Yes; N: No.

**Supplemental Table 2 Characteristics of Patients in these pulmonary benign metastasizing leiomyoma case reports**

	Number
Total patients	83
Respiratory Clinical Manifestation	
Asymptomatic	26
Back Pain	2
Chest pain	6
Chest pain, cough,	1
Pneumothorax	
Chest pain, dyspnea	1
Chest tightness	1
Chest tightness, dyspnea	1
Chest tightness, dyspnea,	1
Pneumothorax	
Cough	8
Cough, dyspnea	2
Cough, chest pain, dyspnea	1
Cough, dyspnea	1
Cough, dyspnea, chest pain	1
Cough, fever	1
Cough, hemoptysis	1
Cough, sputum, haemoptysis	1
Cough, sputum, haemoptysis,	2
Dyspnoea	
Cough, dyspnea	1
Dyspnea	6
Dyspnea , cough	1
Dyspnea on exertion	1
Dyspnea, cough	1
Dyspnoea	3

Fever	2
Pleural effusion, dyspnea	1
Pleural effusion, fever, cough,	1
Chest pain	
Pleural effusion, dyspnea,	1
Cough	
Pneumothorax	2
Pneumothorax, dyspnea	1
N/A	5
Final Diagnosis	
CT-guided percutaneous	12
Needle biopsy	
Postmortem examination	2
Surgery	63
Transbronchial biopsy	1
N/A	4
Blank	5
Treatment	
Anti-hormonal therapy	1
Aromatase inhibitor	2
Aromatase inhibitors	1
Bilateral	
Salpingo-oophorectomy,	1
Medroxyprogesterone	
Bilateral oophorectomy	1
Bilateral oophorectomy,	1
Tamoxifen	
Bilateral	5
Salpingo-oophorectomy	
Bilateral	1
Salpingo-oophorectomy,	

Aromatase inhibitor	
Bilateral	
Salpingo-oophorectomy,	1
Hormonal therapy	
Bilateral	2
Salpingo-oophorectomy	
Bilateral	
Salpingo-oophorectomy, aromatase	1
Inhibitor	
Estradiol transdermal patch	1
Gnrh agonist	6
Gnrh agonist, Bilateral	1
Oophorectomy	
Gnrh agonist-Diphereline	1
Goserelin acetate, gnrh	1
Agonist	
Hormonal therapy	1
Leuprolide acetate	3
Medroxyprogesterone, gnrh	
Agonist, left	1
Salpingo-oophorectomy	
Medroxyprogesterone, only 3	1
mo	
Megestrol therapy, gnrh	1
Agonist(dismissed), oophorectomy	
Mifepristone	1
N	2
Observation	26
Observation, undergone	1
Menopause	
Tamoxifen	3

Tamoxifen, Bilateral	1
Oophorectomy	
N/A	15
Blank	4
Follow-up	
Dead	2
Decrease	11
Progress	6
Stable	45
N/A	19
Blank	4
Uterine Leiomyoma	
N	1
Y	80
N/A	2
Blank	4
Myomectomy or Hysterectomy	
Hysterectomy	55
Hysterectomy, Myomectomy	1
Hysterectomy, Myomectomy	3
Myomectomy	14
N	7
N/A	3
Blank	4

---

CT: Computed tomography; N/A: Data not available; gnrh:

Gonadotrophin-releasing hormone; Y: Yes; N: No.

## REFERENCES

- 1 **Barnes HM**, Richardson PJ. Benign metastasizing fibroleiomyoma. A case report. *J Obstet Gynaecol Br Commonw* 1973; **80**: 569-573 [PMID: 4720534 DOI: 10.1111/j.1471-0528.1973.tb15983.x]
- 2 **Lipton JH**, Fong TC, Burgess KR. Miliary pattern as presentation of leiomyomatosis of the lung. *Chest* 1987; **91**: 781-782 [PMID: 3568785 DOI: 10.1378/chest.91.5.781]
- 3 **Parenti DJ**, Morley TF, Giudice JC. Benign metastasizing leiomyoma. A case report and review of the literature. *Respiration* 1992; **59**: 347-350 [PMID: 1488573 DOI: 10.1159/000196086]
- 4 **Shin MS**, Fulmer JD, Ho KJ. Unusual computed tomographic manifestations of benign metastasizing leiomyomas as cavitary nodular lesions or interstitial lung disease. *Clin Imaging* 1996; **20**: 45-49 [PMID: 8846309 DOI: 10.1016/0899-7071(94)00076-x]
- 5 **Maredia R**, Snyder BJ, Harvey LA, Schwartz AM. Benign metastasizing leiomyoma in the lung. *Radiographics* 1998; **18**: 779-782 [PMID: 9599398 DOI: 10.1148/radiographics.18.3.9599398]
- 6 **Arai T**, Yasuda Y, Takaya T, Shibayama M. Natural decrease of benign metastasizing leiomyoma. *Chest* 2000; **117**: 921-922 [PMID: 10713035 DOI: 10.1378/chest.117.3.921]
- 7 **Lawson LM**, Tiwari P, Filipenko JD. An unusual cause of an incidental lung mass. *Can Respir J* 2003; **10**: 276-277 [PMID: 12945004 DOI: 10.1155/2003/754616]
- 8 **Goyle KK**, Moore DF Jr, Garrett C, Goyle V. Benign metastasizing leiomyomatosis: case report and review. *Am J Clin Oncol* 2003; **26**: 473-476 [PMID: 14528073 DOI: 10.1097/01.coc.0000037737.78080.E3]
- 9 **Nardo LG**, Iyer L, Reginald PW. Benign pulmonary metastasizing leiomyomatosis in pregnancy: a rare complication after cesarean section. *Acta Obstet Gynecol Scand* 2003; **82**: 770-772 [PMID: 12848652 DOI: 10.1034/j.1600-0412.2003.00024.x]
- 10 **Funakoshi Y**, Sawabata N, Takeda S, Hayakawa M, Okumura Y, Maeda H.

Pulmonary benign metastasizing leiomyoma from the uterus in a postmenopausal woman: report of a case. *Surg Today* 2004; **34**: 55-57 [PMID: 14714229 DOI: 10.1007/s00595-003-2627-y]

11 **Wentling GK**, Sevin BU, Geiger XJ, Bridges MD. Benign metastasizing leiomyoma responsive to megestrol: case report and review of the literature. *Int J Gynecol Cancer* 2005; **15**: 1213-1217 [PMID: 16343217 DOI: 10.1111/j.1525-1438.2005.00190.x]

12 **Yamazaki K**. CD10- and CD34-positive periglandular stromal cells in pulmonary benign metastasizing leiomyoma with metaplastic adenomyomatous glands: an ultrastructural and immunohistochemical study. *Virchows Arch* 2005; **446**: 270-277 [PMID: 15688167 DOI: 10.1007/s00428-004-1184-0]

13 **Jo JH**, Lee JH, Kim DC, Kim SH, Kwon HC, Kim JS, Kim HJ. A case of benign metastasizing leiomyoma with multiple metastasis to the soft tissue, skeletal muscle, lung and breast. *Korean J Intern Med* 2006; **21**: 199-201 [PMID: 17017672 DOI: 10.3904/kjim.2006.21.3.199]

14 **Egberts JH**, Schafmayer C, Bauerschlag DO, Jänig U, Tepel J. Benign abdominal and pulmonary metastasizing leiomyoma of the uterus. *Arch Gynecol Obstet* 2006; **274**: 319-322 [PMID: 16649038 DOI: 10.1007/s00404-006-0165-8]

15 **Patton KT**, Cheng L, Papavero V, Blum MG, Yeldandi AV, Adley BP, Luan C, Diaz LK, Hui P, Yang XJ. Benign metastasizing leiomyoma: clonality, telomere length and clinicopathologic analysis. *Mod Pathol* 2006; **19**: 130-140 [PMID: 16357844 DOI: 10.1038/modpathol.3800504]

16 **Kwon YI**, Kim TH, Sohn JW, Yoon HJ, Shin DH, Park SS. Benign pulmonary metastasizing leiomyomatosis: case report and a review of the literature. *Korean J Intern Med* 2006; **21**: 173-177 [PMID: 17017666 DOI: 10.3904/kjim.2006.21.3.173]

17 **Arif S**, Ganesan R, Spooner D. Intravascular leiomyomatosis and benign metastasizing leiomyoma: an unusual case. *Int J Gynecol Cancer* 2006; **16**: 1448-1450 [PMID: 16803546 DOI: 10.1111/j.1525-1438.2006.00607.x]

- 18 **Sapmaz F**, Ergin M, Katrancioğlu O, Gonlugur T, Gonlugur U, Elagoz S. Benign metastasizing leiomyoma. *Lung* 2008; **186**: 271-273 [PMID: 18357490 DOI: 10.1007/s00408-008-9084-8]
- 19 **Lee HJ**, Choi J, Kim KR. Pulmonary benign metastasizing leiomyoma associated with intravenous leiomyomatosis of the uterus: clinical behavior and genomic changes supporting a transportation theory. *Int J Gynecol Pathol* 2008; **27**: 340-345 [PMID: 18580311 DOI: 10.1097/PGP.0b013e3181656dab]
- 20 **Rao AV**, Wilson J, Sylvester K. Pulmonary benign metastasizing leiomyoma following hysterectomy: a clinicopathologic correlation. *J Thorac Oncol* 2008; **3**: 674-676 [PMID: 18520812 DOI: 10.1097/JTO.0b013e3181757a46]
- 21 **Nasu K**, Tsuno A, Takai N, Narahara H. A case of benign metastasizing leiomyoma treated by surgical castration followed by an aromatase inhibitor, anastrozole. *Arch Gynecol Obstet* 2009; **279**: 255-257 [PMID: 18523791 DOI: 10.1007/s00404-008-0698-0]
- 22 **di Scioscio V**, Feraco P, Miglio L, Toni F, Malvi D, Pacilli AM, Fasano L, Fabbri M, Zompatori M. Benign metastasizing leiomyoma of the lung: PET findings. *J Thorac Imaging* 2009; **24**: 41-44 [PMID: 19242303 DOI: 10.1097/RTI.0b013e31818a0840]
- 23 **Tatebe S**, Oka K, Kuraoka S, Yatabe Y. Benign metastasizing leiomyoma of the lung: potential role of low-grade malignancy. *Thorac Cardiovasc Surg* 2009; **57**: 180-183 [PMID: 19330762 DOI: 10.1055/s-2008-1038637]
- 24 **Moon H**, Park SJ, Lee HB, Kim SR, Choe YH, Chung MJ, Jin GY, Lee YC. Pulmonary benign metastasizing leiomyoma in a postmenopausal woman. *Am J Med Sci* 2009; **338**: 72-74 [PMID: 19506459 DOI: 10.1097/MAJ.0b013e31819c7160]
- 25 **Lin X**, Fan W, Lang P, Hu Y, Zhang X, Sun X. Benign metastasizing leiomyoma identified using 18F-FDG PET/CT. *Int J Gynaecol Obstet* 2010; **110**: 154-156 [PMID: 20435308 DOI: 10.1016/j.ijgo.2010.03.017]
- 26 **Lim SY**, Park JC, Bae JG, Kim JI, Rhee JH. Pulmonary and retroperitoneal benign metastasizing leiomyoma. *Clin Exp Reprod Med* 2011; **38**: 174-177 [PMID: 22384439 DOI: 10.5653/cerm.2011.38.3.174]

- 27 **Steiner PE**. Metastasizing fibroleiomyoma of the uterus: Report of a case and review of the literature. *Am J Pathol* 1939; **15**: 89-110.7 [PMID: 19970436]
- 28 **Aboualfa K**, Calandriello L, Dusmet M, Ladas G, Hansell DM, Nicholson AG. Benign metastasizing leiomyoma presenting as cystic lung disease: a diagnostic pitfall. *Histopathology* 2011; **59**: 796-799 [PMID: 22014060 DOI: 10.1111/j.1365-2559.2011.03952.x]
- 29 **Mizuno M**, Nawa A, Nakanishi T, Yatabe Y. Clinical benefit of endocrine therapy for benign metastasizing leiomyoma. *Int J Clin Oncol* 2011; **16**: 587-591 [PMID: 21161313 DOI: 10.1007/s10147-010-0156-4]
- 30 **Naito M**, Kobayashi T, Yoshida M, Fujiwara K, Onishi M, Fujiwara A, Takagi T, Kobayashi H, Gabazza EC, Takei Y, Taguchi O. Solitary pulmonary nodule of benign metastasizing leiomyoma associated with primary lung cancer: a case report. *J Med Case Rep* 2011; **5**: 500 [PMID: 21975297 DOI: 10.1186/1752-1947-5-500]
- 31 **Goto T**, Maeshima A, Akanabe K, Hamaguchi R, Wakaki M, Oyamada Y, Kato R. Benign metastasizing leiomyoma of the lung. *Ann Thorac Cardiovasc Surg* 2012; **18**: 121-124 [PMID: 21959195 DOI: 10.5761/atcs.cr.11.01688]
- 32 **Wongsripuentet J**, Ruangchira-urai R, Stern EJ, Kanne JP, Muangman N. Benign metastasizing leiomyoma. *J Thorac Imaging* 2012; **27**: W41-W43 [PMID: 21566534 DOI: 10.1097/RTI.0b013e318215cc26]
- 33 **Rege AS**, Snyder JA, Scott WJ. Benign metastasizing leiomyoma: a rare cause of multiple pulmonary nodules. *Ann Thorac Surg* 2012; **93**: e149-e151 [PMID: 22632533 DOI: 10.1016/j.athoracsur.2011.12.047]
- 34 **Nakajo M**, Nakayama H, Sato M, Fukukura Y, Nakajo M, Kajiya Y, Yanagi M, Tabata K, Higashi M. FDG-PET/CT finding of benign metastasizing leiomyoma of the lung. *Acta Radiol Short Rep* 2012; **1**: [PMID: 23986835 DOI: 10.1258/arsr.2012.120012]
- 35 **Taveira-DaSilva AM**, Alford CE, Levens ED, Kotz HL, Moss J. Favorable response to antigonadal therapy for a benign metastasizing leiomyoma. *Obstet Gynecol* 2012; **119**: 438-442 [PMID: 22270431 DOI: 10.1097/AOG.0b013e318240090e]

- 36 **Fu Y**, Li H, Tian B, Hu B. Pulmonary benign metastasizing leiomyoma: a case report and review of the literature. *World J Surg Oncol* 2012; **10**: 268 [PMID: 23234399 DOI: 10.1186/1477-7819-10-268]
- 37 **Okabe R**, Shoji T, Huang CL. Benign metastasizing leiomyoma of the lung with spontaneous pneumothorax. *Thorac Cardiovasc Surg Rep* 2013; **2**: 26-28 [PMID: 25360407 DOI: 10.1055/s-0033-1345266]
- 38 **Ki EY**, Hwang SJ, Lee KH, Park JS, Hur SY. Benign metastasizing leiomyoma of the lung. *World J Surg Oncol* 2013; **11**: 279 [PMID: 24134076 DOI: 10.1186/1477-7819-11-279]
- 39 **Mogi A**, Hirato J, Kosaka T, Yamaki E, Kuwano H. Benign metastasizing leiomyoma of the lung: report of a case. *Gen Thorac Cardiovasc Surg* 2013; **61**: 719-722 [PMID: 23117336 DOI: 10.1007/s11748-012-0174-4]
- 40 **Medarov BI**, Khan MMHS, Modi A. Multiple Lung Masses in a Young Woman. *JAMA* 2018; **320**: 2141-2142 [PMID: 30347043 DOI: 10.1001/jama.2018.14770]
- 41 **Tang EK**, Wu FZ. Benign Metastasizing Leiomyomatosis of the Lung Presenting as Progressive Pneumothorax. *Heart Lung Circ* 2019; **28**: e94-e95 [PMID: 30389364 DOI: 10.1016/j.hlc.2018.10.014]
- 42 **Loukeri AA**, Pantazopoulos IN, Tringidou R, Giampoudakis P, Valaskatzi A, Loukeri PA, Kampolis CF. Benign metastasizing leiomyoma presenting as cavitating lung nodules. *Respir Care* 2014; **59**: e94-e97 [PMID: 24255161 DOI: 10.4187/respcare.02775]
- 43 **Taftaf R**, Starnes S, Wang J, Shipley R, Namad T, Khaled R, Abdel Karim N. Benign metastasizing leiomyoma: a rare type of lung metastases-two case reports and review of the literature. *Case Rep Oncol Med* 2014; **2014**: 842801 [PMID: 24716049 DOI: 10.1155/2014/842801]
- 44 **Orejola WC**, Vaidya AP, Elmann EM. Benign metastasizing leiomyomatosis of the lungs presenting a miliary pattern. *Ann Thorac Surg* 2014; **98**: e113-e114 [PMID: 25441829 DOI: 10.1016/j.athoracsur.2014.07.057]
- 45 **Tohya T**, Tajima T, Takeshita Y, Ito K, Kuriwaki K, Katabuchi H. Case of concurrent benign metastasizing leiomyoma in the lung and retroperitoneum,

with a focus on its etiology. *J Obstet Gynaecol Res* 2014; **40**: 2010-2013 [PMID: 25131768 DOI: 10.1111/jog.12424]

46 **Lin J**, Song X, Liu C. Pelvic intravascular leiomyomatosis associated with benign pulmonary metastasizing leiomyoma: clinicopathologic, clonality, and copy number variance analysis. *Int J Gynecol Pathol* 2014; **33**: 140-145 [PMID: 24487468 DOI: 10.1097/PGP.0b013e31828def26]

47 **Ağaçkiran Y**, Findik G, Ustün LN, Aydoğdu K, Kaya S. Pulmonary Benign Metastasizing Leiomyoma: An Extremely Rare Case. *Turk Patoloji Derg* 2014; : [PMID: 24715553 DOI: 10.5146/tjpath.2013.01217]

48 **Chen S**, Liu RM, Li T. Pulmonary benign metastasizing leiomyoma: a case report and literature review. *J Thorac Dis* 2014; **6**: E92-E98 [PMID: 24977035 DOI: 10.3978/j.issn.2072-1439.2014.04.37]

49 **Chen YY**, Wu ST, Hsu HH, Chen YC, Lee SC, Chang H, Huang TW. Pulmonary leiomyomas in a patient with bilateral renal cell cancer mimicking pulmonary metastases. *Clin Imaging* 2014; **38**: 330-332 [PMID: 24636136 DOI: 10.1016/j.clinimag.2014.01.008]

50 **Yu R**, Ferri M. An unusual cause of pulmonary nodules in the emergency department. *Case Rep Emerg Med* 2015; **2015**: 278020 [PMID: 25802769 DOI: 10.1155/2015/278020]

51 **Jolissaint JS**, Kilbourne SK, LaFortune K, Patel M, Lau CL. Benign metastasizing leiomyomatosis (BML): A rare cause of cavitory and cystic pulmonary nodules. *Respir Med Case Rep* 2015; **16**: 122-124 [PMID: 26744676 DOI: 10.1016/j.rmcr.2015.09.008]

52 **Ma H**, Cao J. Benign pulmonary metastasizing leiomyoma of the uterus: A case report. *Oncol Lett* 2015; **9**: 1347-1350 [PMID: 25663911 DOI: 10.3892/ol.2015.2878]

53 **Wei WT**, Chen PC. Benign metastasizing leiomyoma of the lung: A case report and literature review. *Oncol Lett* 2015; **10**: 307-312 [PMID: 26171020 DOI: 10.3892/ol.2015.3224]

54 **Grafino M**, Ferreira L, Telo L, Mira S, Alvoeiro M, Bárbara C. A rare cause of miliary pattern and respiratory failure - Benign metastasizing leiomyoma.

*Rev Port Pneumol (2006)* 2016; **22**: 296-297 [PMID: 27178355 DOI: 10.1016/j.rppnen.2016.03.014]

55 **Raś R**, Książek M, Barnaś E, Skręt-Magierło J, Kąziołka W, Fudali L, Filipowska J, Skręt A. Benign metastasizing leiomyoma in triple location: lungs, parametria and appendix. *Prz Menopauzalny* 2016; **15**: 117-121 [PMID: 27582687 DOI: 10.5114/pm.2016.61195]

56 **Wienczek-Weiss AJ**, Bruliński K. Benign metastasizing leiomyomas in the lungs: a case study. *Kardiochir Torakochirurgia Pol* 2016; **13**: 61-63 [PMID: 27212984 DOI: 10.5114/kitp.2016.58970]

57 **Alimi F**, El Hadj Sidi C, Ghannouchi C. Cystic Benign Metastasizing Leiomyoma of the Lung Mimicking Hydatid Cyst. *Lung* 2016; **194**: 1029-1030 [PMID: 27631636 DOI: 10.1007/s00408-016-9938-4]

58 **Park BY**, Leslie KO, Chen L, Vaszar LT, Cornella JL. A Case of Simultaneous Benign Metastasizing Leiomyomas and Disseminated Peritoneal Leiomyomatosis Following Endoscopic Power Morcellation for Uterine Disease. *Female Pelvic Med Reconstr Surg* 2017; **23**: e1-e3 [PMID: 27748666 DOI: 10.1097/SPV.0000000000000342]

59 **Rizzo V**, Parissis H. A rare case of benign metastasizing leiomyoma†. *J Surg Case Rep* 2017; **2017**: rjx190 [PMID: 28959432 DOI: 10.1093/jscr/rjx190]

60 **Asumu H**, Estrin Y, Mohammed TL, Verma N. Benign Metastasizing Leiomyoma. *Curr Probl Diagn Radiol* 2017; **46**: 257-259 [PMID: 27659239 DOI: 10.1067/j.cpradiol.2016.07.002]

61 **Yoon J**, Spies JB, Caridi TM. Benign Metastasizing Leiomyomas Following Myomectomy and Uterine Artery Embolization. *Cardiovasc Intervent Radiol* 2017; **40**: 1796-1799 [PMID: 28536870 DOI: 10.1007/s00270-017-1696-z]

62 **Choe YH**, Jeon SY, Lee YC, Chung MJ, Park SY, Lee YC, Kim SR. Benign metastasizing leiomyoma presenting as multiple cystic pulmonary nodules: a case report. *BMC Womens Health* 2017; **17**: 81 [PMID: 28899426 DOI: 10.1186/s12905-017-0435-6]

63 **Lee SR**, Choi YI, Lee SJ, Shim SS, Lee JH, Kim YK, Sung SH. Multiple cavitating pulmonary nodules: rare manifestation of benign metastatic

leiomyoma. *J Thorac Dis* 2017; **9**: E1-E5 [PMID: 28203428 DOI: 10.21037/jtd.2016.11.112]

64 **Pastré J**, Juvin K, Grand B, Gibault L, Valcke J, Israël-Biet D. Pulmonary benign metastasizing leiomyoma presented as acute respiratory distress. *Respirol Case Rep* 2017; **5**: e00216 [PMID: 28116091 DOI: 10.1002/rcr2.216]

65 **Efared B**, Atsame-Ebang G, Sani R, Tahiri L, Sidibe IS, Erregad F, Hammam N, Smahi M, Serraj M, Chbani L, Fatemi HE. Unexpected pulmonary tumor: metastasis from a benign uterine leiomyoma in a post-menopausal woman: a case report. *BMC Res Notes* 2017; **10**: 662 [PMID: 29191211 DOI: 10.1186/s13104-017-2998-6]

66 **Raposo MI**, Meireles C, Cardoso M, Ormonde M, Ramalho C, Pires M, Afonso M, Petiz A. Benign Metastasizing Leiomyoma of the Uterus: Rare Manifestation of a Frequent Pathology. *Case Rep Obstet Gynecol* 2018; **2018**: 5067276 [PMID: 30510824 DOI: 10.1155/2018/5067276]

67 **Jo HC**, Baek JC. Case of pulmonary benign metastasizing leiomyoma from synchronous uterine leiomyoma in a postmenopausal woman. *Gynecol Oncol Rep* 2018; **26**: 33-36 [PMID: 30225333 DOI: 10.1016/j.gore.2018.08.009]

68 **Bakkensen JB**, Samore W, Bortoletto P, Morton CC, Anchan RM. Pelvic and pulmonary benign metastasizing leiomyoma: A case report. *Case Rep Womens Health* 2018; **18**: e00061 [PMID: 29785389 DOI: 10.1016/j.crwh.2018.e00061]

69 **Khan M**, Faisal A, Ibrahim H, Barnes T, VanOtteren GM. Pulmonary benign metastasizing leiomyoma: A case report. *Respir Med Case Rep* 2018; **24**: 117-121 [PMID: 29977777 DOI: 10.1016/j.rmcr.2018.04.017]

70 **Sõritsa D**, Teder H, Roosipuu R, Tamm H, Laisk-Podar T, Soplepmann P, Altraja A, Salumets A, Peters M. Whole exome sequencing of benign pulmonary metastasizing leiomyoma reveals mutation in the BMP8B gene. *BMC Med Genet* 2018; **19**: 20 [PMID: 29386003 DOI: 10.1186/s12881-018-0537-5]

71 **Ofori K**, Fernandes H, Cummings M, Colby T, Saqi A. Benign metastasizing leiomyoma presenting with miliary pattern and fatal outcome:

Case report with molecular analysis & review of the literature. *Respir Med Case Rep* 2019; **27**: 100831 [PMID: 30989050 DOI: 10.1016/j.rmcr.2019.100831]

72 **Yuan X**, Sun Y, Jin Y, Xu L, Dai H, Wang J, Zhang Z, Chen X. Multiple organ benign metastasizing leiomyoma: A case report and literature review. *J Obstet Gynaecol Res* 2019; **45**: 2132-2136 [PMID: 31381225 DOI: 10.1111/jog.14066]

73 **Huang L**, Shi G, Wang Q, Guo Y, Cong M. Pulmonary and mediastinum metastasis of uterine leiomyoma: A case report. *Medicine (Baltimore)* 2019; **98**: e18276 [PMID: 31804368 DOI: 10.1097/MD.00000000000018276]

74 **Sala ML**, von der Thusen JH, Korteweg C, Quarles van Ufford HME. An unusual cause of multiple incidental lung nodules. *Clin Case Rep* 2020; **8**: 221-223 [PMID: 31998524 DOI: 10.1002/ccr3.2606]

75 **Zhang J**, Dong A, Cui Y, Wang Y, Chen J. Diffuse cavitory benign metastasising leiomyoma of the lung. *Thorax* 2019; **74**: 208-209 [PMID: 30554139 DOI: 10.1136/thoraxjnl-2018-212769]

76 **Xiao Z**, Wang Y. [Benign metastasizing leiomyoma: A case report and literature review]. *Zhong Nan Da Xue Xue Bao Yi Xue Ban* 2019; **44**: 951-956 [PMID: 31570686 DOI: 10.11817/j.issn.1672-7347.2019.08.180381]