

**Supplementary Table 1. Cases of tumor-to-tumor metastasis reported in the literature**

Recipient tumor	Location of primary cancer	No. of reported cases	References
Meningioma	Breast	38 (3 spinal)	[1-35]
	Lung	43	[6,26,30,36-71]
	Renal	14	[7,13,60,72-82]
	Prostate	10	[30,83-93]
	Malignant melanoma	4	[67,91-90]
	Colorectal	2	[88,94]
	Stomach	1	[95]
	Esophageal	1	[96]
	Hepatobiliary	2	[97,98]
	Pancreas	1	[37]
	Thyroid	3	[99-101]
	Pituitary carcinoma	1	[102]
	Parotid gland	1	[103]
	Uterine	1	[104]
	Cervix	1	[105]
	Hematopoietic	3	[106,107]
	Unknown primary	5	[37,53,108,109]
Pituitary adenoma	Breast	4	[110-113]
	Lung	3	[114-116]
	Renal	2	[117,118]
	Prostate	1	[119]
	Colorectal	2	[120,121]
	Stomach	2	[115,122]
	Pancreas	1	[119]
	Mediastinal	1	[123]
	Unknown primary	3	[110,116,124]
	Hemangioblastoma	Renal	16 (4 spinal)
Schwannoma	Breast	5 (1 spinal)	[137-141]
	Lung	5	[30,142-144]
Astrocytoma	Lung	4	[147-149]
	Lung	1	[147-149]
Glioblastoma	Renal	1	[150]
	Thyroid	1	[151]
Oligodendroglioma	Breast	3	[152-154]
	Malignant melanoma	2	[155,156]
Ependymoma	Colorectal	1	[157]
	Lung	1	[147]
Pilocytic astrocytoma	Breast	1	[158]
Central neurocytoma	Malignant melanoma	1	[159]
Glioma, unspecified	Breast	1	[160]

**REFERENCES**

- Lal N, Shajehan S, Shajehan U, Abraham R. Intrameningioma Metastases - A Wolf among the Sheep. *Neurology India* 2022;70:1247-1250.
- Fernandez C, Cappelli L, Chapin S, Kenyon L, Farrell CJ, Shi W. Breast carcinoma metastasis in a resected meningioma with early diagnosis of oligometastatic disease: a case report. *Chinese Clinical Oncology* 2020;9.
- Hosseinzadeh M, Ketabchi SM, Ahmadi SA, Hendi K, Alimohamadi M. Meningioma as the host for metastatic breast cancer: a rare occurrence with important therapeutic impact [Article]. *Surgical Neurology International* 2021;12.
- Lin JW, Su FW, Wang HC, Lee TC, Ho JJ, Lin CH, et al. Breast carcinoma metastasis to intracranial meningioma. *J Clin Neurosci* 2009;16:1636-1639.
- Pablo LJ, Patricia C, Julián J, Ariel Z, Roberto S, Jorge C, et al. Metastasis of breast carcinoma to spinal meningioma. *Breast J* 2009;15:539-540.
- Pham JT, Kim RC, Nguyen A, Bota D, Kong XT, Vadera S, et al. Intracranial meningioma with carcinoma tumor-to-tumor metastasis: Two case reports. *LANET* 2018;7.
- Canotte M, Benesch F, Panciani PP, Cassoni P, Ducati A. Systemic cancer metastasis in a meningioma: report of two cases and review of the literature. *Clin Neurol Neurosurg* 2009;111:87-93.
- Caroli E, Salvati M, Giangaspero F, Ferrante L, Santoro A. Intrameningioma metastasis as first clinical manifestation of occult primary breast carcinoma. *Neurosurg Rev* 2006;29:49-54.
- Jun P, Garcia J, Tihan T, McDermott MW, Cha S. Perfusion MR imaging of an intracranial collision tumor confirmed by image-guided biopsy. *AJNR Am J Neuroradiol* 2006;27:94-97.
- Miyagi N, Hara S, Terasaki M, Orito K, Yamashita S, Hirohata M, et al. [A rare case of intracranial meningioma with intratumoral metastatic breast cancers]. *No Shinkei Geka* 2007;35:901-905.
- Aghi M, Kiehl TR, Brisman JL. Breast adenocarcinoma metastatic to epidural cervical spine meningioma: case report and review of the literature. *J Neurooncol* 2005;75:149-155.
- Baratelli GM, Ciccaglioni B, Dainese E, Arnaboldi L. Metastasis of breast carcinoma to intracranial meningioma. *Journal of Neurological Sciences* 48:71-73.
- Barz H. [The incidence of metastatic carcinomas in meningiomas. A report of 4 cases]. *Zentralbl Allg Pathol* 1983;127:367-374.
- Bonito D, Giarrelli L, Falconieri G, Bonifacio-Gori D, Tomasic G, Vielh P. Association of breast cancer and meningioma. Report of 12 new cases and review of the literature. *Pathol Res Pract* 1993;189:399-404.
- Bucciero A, del Basso de Caro M, Vizioli L, Carraturo S, Cerillo A, Tedeschi G. Metastasis of breast carcinoma to intracranial meningioma. Case report and review of the literature. *J Neurosurg Sci* 1992;36:169-172.
- Cervoni L, Salvati M, Gagliardi D, Delfini R. Metastasis of breast carcinoma to intracranial meningioma. Case report. *Neurosurg Rev* 1994;17:233-236.
- Chou LW, Ho KH, Fong CM. Intracranial meningioma with metastatic breast carcinoma. *Ann Oncol* 1992;3:409-410.
- Loron W, Gruszkiewicz J. Metastasis of invasive carcinoma of the breast to an extradural meningioma of the cranial vault. *Cancer* 1987;60:1081-1084.
- Elmaci L, Elkinci G, Kurtkaya O, Sav A, Pamir MN. Tumor in tumor: metastasis of breast carcinoma to intracranial meningioma. *Tumori* 87:423-427.
- Fabaron F, Babinier L, Vendé B, Babin P, Morin M. [Metastasis of breast cancer in frontal meningioma]. *Ann Radiol (Paris)* 1990;33:48-50.
- Fornelli A, Bacci A, Collina G, Eusebi V. [Breast carcinoma metastatic to meningioma: review of the literature and description of 2 new cases]. *Pathologica* 1995;87:506-512.
- Lee A, Wallace C, Rewcastle B, Sutherland G. Metastases to meningioma. *AJNR Am J Neuroradiol* 1998;19:1120-1122.
- Völker U, Thierauf P. [Tumor in tumor: breast cancer metastasis in a meningioma]. *Pathologie* 1993;14:231-233.
- Watanabe T, Fujisawa H, Hasegawa M, Arakawa Y, Yamashita J, Ueda F, et al. Metastasis of breast cancer to intracranial meningioma: case report. *American Journal of Clinical Oncology* 25:414-417.
- Zon LJ, Johns WD, Stomper PC, Kaplan WD, Connolly JL, Morris JH, et al. Breast carcinoma metastatic to a meningioma. Case report and review of the literature. *Arch Intern Med* 1989;149:959-962.
- Lodrin S, Savoiardo M. Metastases of carcinoma to intracranial meningioma: report of two cases and review of the literature. *Cancer* 1981;48:2668-2673.
- Savoiardo M, Lodrin S. Hypodense area within a meningioma: metastasis from breast cancer. *Neuroradiology* 1980;20:107-110.
- Anlyan FH, Heinzen BR, Carras R. Metastasis of tumor to second different tumor: collision tumors. *Jama* 1970;212:2124.
- Buge A, Escourolle R, Martin M, Poirier J, Devoise C. [Cerebromeningeal metastases of an epithelioma of the breast. Multiple meningiomas. Intrication of the 2 processes]. *Rev Neurol (Paris)* 1966;114:308-312.
- Chambers PW, Davis RL, Blanding JD, Buck FS. Metastases to primary intracranial meningiomas and neurilemmomas. *Arch Pathol Lab Med* 1980;104:350-354.
- Di Bonito L, Bianchi C. [Metastasis of breast cancer to a meningioma]. *Arch Anat Cytol Pathol* 1978;26:175-176.
- Hockley AD. Metastatic carcinoma in a spinal meningioma. *J Neurol Neurosurg Psychiatry* 1975;38:695-697.
- Lapresle J, Netsyk MG, Zimmerman HM. [The pathology of meningiomas; a study of 121 cases]. *Am J Pathol* 1952;28:757-791.
- Nunnery E, Jr, Kahn LB, Rudnick SA. Breast carcinoma metastatic to meningioma. *Arch Pathol Lab Med* 1980;104:392-393.
- Theologides A, Lee JC. Tumor to tumor metastasis. *Jama* 1972;219:384.
- Arnold AC, Hepler RS, Badr MA, Lufkin RB, Anzai Y, Konrad PN, et al. Metastasis of adenocarcinoma of the lung to optic nerve sheath meningioma. *Arch Ophthalmol* 1995;113:346-351.
- Basaran AE, Kiesel B, Frischer JM, Furtner J, Wöhler A, Dieckmann K, et al. Intrameningioma metastasis: a wolf in sheep's clothing? Experience from a series of 7 cases. *World Neurosurg* 2019;132:169-172.
- Best PV. Metastatic carcinoma in a meningioma: report of a case. *J Neurosurg* 1963;20:892-894.
- Bhargava P, McGrail KM, Manz HJ, Baidas S. Lung carcinoma presenting as metastasis to intracranial meningioma: case report and literature review. *Am J Clin Oncol* 1999;22:199-202.
- Bori R, Kiss CA, Huszka E, Szucs M, Tusa M, Cserni G. [A rare case of tumor-to-tumor metastasis: secondary deposits of pulmonary adenocarcinoma in a secretory meningioma]. *Magyar Onkologia* 46:261-264.
- Chatani M, Nakagawa I, Yamada S, Sugimoto T, Hironaka Y, Nakamura M, et al. Intracranial meningioma as initial clinical manifestation of occult lung carcinoma: case report. *Neurol Med Chir (Tokyo)* 2014;54:670-672.
- Conzen M, Sollmann H, Schnabel R. Metastasis of lung carcinoma to intracranial meningioma. Case report and review of literature. *Neurochirurgia (Stuttgart)* 1986;29:206-209.
- Cserni G, Bori R, Huszka E, Kiss AC. Metastasis of pulmonary adenocarcinoma in right sylvian secretory meningioma. *Br J Neurosurg* 2002;16:66-68.
- Danisman Specialist M, Kopyal M, Paksoy Y, Keleşoğlu KS, Karabağlı P, Köktekir E. Small Cell Lung Carcinoma Metastasis To Atypical Meningioma: The Importance Of Perfusion MRI Graphics In Differential Diagnosis. *World Neurosurg* 2019.
- Duprez R, Thimon S, Kerdraon R, Bonneau C, Metois D, Michenet P. Tumor-to-tumor metastasis: report of three cases. *Annales de Pathologie* 2009; 29:507-511.
- Fried BM. Metastatic inoculation of a meningioma by parent cells from a bronchiogenic carcinoma. *Am J Pathol* 1930;6:47-52.41.
- Gardiman M, Altavilla G, Marchioro L, Alessio L, Piazza M. Metastasis to intracranial meningioma as first clinical manifestation of occult primary lung carcinoma. *Tumori* 1996;82:256-258.
- Glass R, Huokku SR, Gershenhorn B, Alzate J, Tan B. Metastasis of lung adenocarcinoma to meningioma: case report with literature review. *Int J Clin Exp Pathol* 2013;6:2625-2630.
- Gyori E. Metastatic carcinoma in meningioma. *South Med J* 1976;69:514-517.
- Hamperl M, Goehre F, Schwan S, Jahromi BR, Friedmann A, Ludtka CM, et al. Tumor-to-tumor metastasis—bronchial carcinoma in meningioma. *Clin Neuropathol* 2015;34:302-306.
- Hope DT, Symon L. Metastasis of carcinoma to meningioma. *Acta Neurochir (Wien)* 1978;40:307-313.
- Hu T, Wang R, Song Y, Yu J, Guo Z, Han S. Metastasis of pulmonary adenocarcinoma to right occipital parafalcine meningioma: a case report and literature review. *Medicine* 2020;99:e23028.
- Johnson MD. Do mesothelin/MUC16 interactions facilitate adenocarcinoma metastases to intracranial meningiomas? *Surgical neurology international* 7:51049-51052.
- Jomin M, Dupont A, Wemeau J, Krivosic I, Montagne B, Lesoin F, et al. [Metastasis of visceral tumors in intracranial tumors. Apropos of a metastasis of a lung cancer in an intracranial meningioma]. *Neurochirurgie* 1982;28:343-347.
- Kim KH, Hong EK, Lee SH, Yoo H. Non small cell carcinoma metastasis to meningioma. *Journal of Korean Neurological Society* 2013;53:43-45.
- Liu N, Guli QR, Ming XC, Zhou HT, Cui YJ, Zhang D, et al. Tumor-to-tumor metastasis: lung adenocarcinoma metastasizing to intracranial benign meningioma as a first clinical manifestation, with literature review. *Int J Clin Exp Pathol* 2018;11:2852-2858.
- Mansour S, Luthier E, Echeverry N, McCarthy D, Eichenberg DG, Shah A, et al. Rare tumor-to-tumor metastases involving lung adenocarcinoma to petroclival meningiomas. *World Neurosurg* 2020;144:125-135.
- Nadeem M, Assad S, Nasir H, Mansoor S, Khan I, Manzoor H, et al. Intrameningioma metastasis: clinical manifestation of occult primary lung carcinoma. *Cureus* 2016;8:e704.
- Nakaya M, Ichimura S, Kurebayashi Y, Mochizuki Y, Fukaya R, Fukuchi M, et al. Contiguous metastasis of pulmonary adenocarcinoma to meningioma. *Journal of Neurological Surgery, Part A: Central European Neurosurgery* 2019;80:127-130.
- Osterberg DH. Metastases of carcinoma to meningioma. *J Neurosurg* 1957;14:337-343.
- Ozsen M, Tolunay S, Yilmazlar S, Parlak M, Karadağ G. Tumor-to-tumor metastasis-Metastasis of pulmonary adenocarcinoma to intracranial meningioma: a case report. *Indian J Pathol Microbiol* 2022;65:949-951.
- Pamphlett R. Carcinoma metastasis to meningioma. *J Neurol Neurosurg Psychiatry* 1984;47:561-563.
- Ravnik J, Ravnik M, Bunc G, Glumbic I, Tobi-Veres E, Velnar T. Metastasis of an occult pulmonary carcinoma into meningioma: a case report. *World J Surg Oncol* 2015;13:292.
- Schmitt HP. Metastases of malignant neoplasms to intracranial tumours: the "tumor-in-a-tumor" phenomenon. *Virchows Arch A Pathol Anat Histopathol* 1984;405:155-160.
- Smith TW, Wang SY, Schoene WC. Malignant carcinoid tumor metastatic to a meningioma. *Cancer* 1981;47:1872-1877.
- Syed S, Karabizbi DJ, Baker A, Groh DM, Toms SA. A comparative report on intracranial tumor-to-tumor metastasis and collision tumors. *World Neurosurgery* 2018;116:454-463.e452.
- Takei H, Powell SZ. Tumor-to-tumor metastasis to the central nervous system. *Neuropathology* 2009;29:303-308.
- Talukdar A, Khanra D, Mukhopadhyay S, Bose D. Tumor to tumor metastasis: adenocarcinoma of lung metastatic to meningioma. *Journal of Postgraduate Medicine* 2014;60:403-405.
- Weems TD, Garcia JH. Intracranial meningioma containing metastatic foci. *South Med J* 1977;70:503-505.
- Wilson CB, Jenevich EP, Bryant LR. Carcinoma of the lung metastatic to falx meningioma: case report. *Journal of Neurosurgery* 1967;27:161-165.
- Wolintz AH, Mastri A. Metastasis of carcinoma of lung to sphenoid ridge meningioma. *N Y State J Med* 1970;70:2592-2598.
- Carr K, He L, Weaver K, Nickols HH. Renal cell carcinoma metastatic to meningioma: tumor to tumor metastasis. *Clinical Neuroepathology* 2014;33:152-156.
- Dietterle J, Frydrychowicz C, Müller W, Hoffmann KT, Jähne K, Meixensberger J. Tumor-to-tumor metastasis of multiple meningiomas and clear cell renal cell carcinoma metastasis as first clinical appearance of kidney cancer: a case report and analysis [Article]. *Journal of Neurological Sciences* 2020; 81:E10-E14.
- Nada A, Abdelrahman A, Cunningham C, Cousins J. Radio-pathological review of a metastatic renal cell carcinoma within a meningioma: a case report of collision tumor [Article]. *Radiology Case Reports* 2020;15:637-640.
- Philog R, Sirbu OM, Laquerrière A, Billaud-Porte E, Carey S, Lozouet M, et al. Tumor-to-tumor metastases: latent renal cell carcinoma discovered after elective surgical resection of a convexity meningioma. *Neurochirurgie* 2022;68:196-201.
- Tshunuo M, Meodda A, Bonetti M, Gasparotti R. Metastatic renal cell carcinoma to a meningioma. *J Neuroimaging* 2010;37:248-250.
- Chahalavi A, Steadgaitis SM, Yahya R, Vogelbaum RA. Intracranial collision tumor mimicking an octreotide-SPECT positive and FDG-PET negative meningioma. *J Clin Neurosci* 2005;12:720-723.
- Gutiérrez Morales JC, Gutiérrez Morales SE, Astudillo González A. 72 year-old man with new seizure while dancing. *Brain Pathol* 2009;19:347-348.
- Kimimura T, Motohashi O, Kumabe T, Watanabe M, Tomimaga T. Lipomatous meningioma of the brain harboring metastatic renal-cell carcinoma: a case report. *Brain Tumor Pathol* 2004;21:47-52.
- Breadmore R, House R, Gonzales M. Metastasis of renal cell carcinoma to a meningioma. *Australas Radiol* 1994;38:144-143.
- Han HS, Kim EY, Han JY, Kim YH, Hwang TS, Chu YC. Metastatic renal cell carcinoma in a meningioma: a case report. *J Korean Med Sci* 2000;15:593-597.
- Stortebecker TP. Metastatic hypernephroma of the brain from a renosurgical point of view: a report of 19 cases. *J Neurosurg* 1951;8:185-197.
- Bernstein RA, Grumet KA, Wetzel N. Metastasis of prostatic carcinoma to intracranial meningioma. Case report. *J Neurosurg* 1983;58:774-777.
- Cluroe AD. Metastasis to meningioma: clues and investigation. *Pathology* 2006;38:76-78.
- Döring L. Metastasis of carcinoma of prostate to meningioma. *Virchows Arch A Pathol Anat Histol* 1975;366:87-91.
- Guraya SS, Prayson RA. Metastatic prostatic adenocarcinoma with neuroendocrine differentiation to meningioma. *Journal of Clinical Neuroscience* 2016;34:30-32.
- Mitchell RA, Dimou J, Tsui A, Kavar B. Metastatic prostate adenocarcinoma invading an atypical meningioma. *J Clin Neurosci* 2011;18:1723-1725.
- Moody P, Murtagh K, Piduru S, Brem S, Murtagh R, Rojiani AM. Tumor-to-tumor metastasis: pathology and neuroimaging considerations. *International Journal of Clinical and Experimental Pathology* 2012;5:367-373.
- Neville IS, Solla DF, Oliveira AM, Casaroli C, Teixeira MJ, Paiva WS. Suspected tumor-to-meningioma collision: a case report. *Oncol Lett* 2017;13:1529-1534.
- Pugsley D, Bailly G, Gupta R, Wilke D, Wood L. Can Urol Assoc J 2009;3:E4-e6.
- Pal D, Bhargava D, Bucur SD, Shivane A, Chakrabarty A, Van Hille P. Metastatic malignant melanoma within meningioma with intratumoral infarct: report of an unusual case and literature review. *Clinical Neuroepathology* 2019;105-108.
- Shariff Z, Lim P, Wright A, Al-Ghazal S. Tumour to tumour metastasis of malignant melanoma to intracranial tumour. *J Clin Med Res* 2009;1:300-301.
- Wong A, Koszyca B, Blumbers PC, Sandhu N, Halcrow S. Malignant melanoma metastatic to a meningioma. *Journal of Clinical Pathology* 31:162-165.
- Benedetto N, Ferrini P, Scollato A, Buccoliero AM, Di Lorenzo N. Intracranial meningioma containing metastatic colon carcinoma. *Acta Neurochir (Wien)* 2007;149:799-803; discussion 803.
- Honma K, Hara K, Sawai T. Tumour-to-tumour metastasis. A report of two unusual autopsy cases. *Virchows Arch A Pathol Anat Histopathol* 1989;416: 153-157.
- Richter B, Harinath L, Pu C, Stabings K. Metastatic spread of systemic neoplasms to central nervous system tumors: review of the literature and case presentation of esophageal carcinoma metastatic to meningioma. *Clinical Neuroepathology* 2017;36:60-65.
- Roy CF, Zolotarov P, Roy SF, Razaghi F. Hickman's dictum: angiosarcoma-to-meningioma metastasis. *Neuropathology* 39:447-451.
- Peison WB, Feigin I, Suprasel R. Meningioma containing metastatic carcinoma. Report of a case. *J Neurosurg* 1961;18:688-689.
- Dharu S, Gupta S, Kumari R. Meningioma with metastasis from follicular carcinoma thyroid. *Indian J Pathol Microbiol* 2010;53:316-318.
- Chaturvedi S, Chaudhary N, Ang LC, Megyesi JS. Papillary thyroid carcinoma metastasizing to anaplastic meningioma: an unusual case of tumor-to-tumor metastasis. *Brain Tumor Pathology* 2017;34:130-134.
- Ling M, Flack J, Bui C, Atlas S, Li JJ, Yang T, et al. Tumor within another tumor: an unusual case of metastatic poorly differentiated thyroid carcinoma within an intracranial meningioma. *Endocrine Reviews* 2014;35.
- Zhou Q, Chang H, Gao Y, Cui L. Tumor-to-tumor metastasis from pituitary carcinoma to radiation-induced meningioma. *Neuropathology* 2013;33:209-212.
- Van Zandijcke M, Casselman J. MR imaging of a metastatic meningioma. *Acta Neurol Belg* 1996;96:329-331.
- Ho KL. Metastasis of carcinoma to meningioma. *Arch Pathol Lab Med* 1980;104:394-395.
- Yang MJ, Hisczjnskyj R. Metastasis of carcinoma of cervix uteri to convexity meningioma. *J Neurosurg* 1977;8:327-329.
- Sonet A, Hustin J, De Coene B, Gilliard C, Gustin T, Doyen C, et al. Unusual growth within a meningioma (leukemic infiltration). *Am J Surg Pathol* 2001; 25:127-130.
- Widdell L, Kleinschmidt-Demasters BK, Kindt G. Tumor-to-tumor metastasis from hematopoietic neoplasms to meningiomas: report of two patients with significant cerebral edema. *World Neurosurg* 2010;74:165-171.
- Bansal B, Khan Z, Khara S, Abrar A. Metastasis to a spinal meningioma. *Surgical Neurology International* 2017;8.
- Cappabianca P, De Chiara A, Spaziante R, Del Basso De Caro M, Cirillo S, Stella L. Metastasis of carcinoma to a meningioma. Case report and revision of the literature. *Acta Neurochir (Wien)* 1985;7:480-482.
- Bret P, Jouve A, Madarassy G, Guyot J, Trouillas J. Visceral cancer metastasis to pituitary adenoma: report of two cases. *Surg Neurol* 2001;55:284-290.
- Richardson JF, Katayama I. Neoplasm to neoplasm metastasis. An acidophil adenoma harbouring metastatic carcinoma: a case report. *Arch Pathol* 1971;91:135-139.
- van der Zwan A, Luyendijk W, Bots GT. Metastasis of mammary carcinoma in a chromophobe adenoma of the hypophysis. *Psychiatr Neurol Neurochir* 1971;74:369-377.
- Zager EL, Hedley-Whyte ET. Metastasis within a pituitary adenoma presenting with bilateral abducens palsies: case report and review of the literature. *Neurosurgery* 1987;21:383-386.
- Kovacs K. Metastatic cancer of the pituitary gland. *Oncology* 1973;27:533-542.
- Molinatti PA, Scheithauer BW, Randall RV, Laws ER, Jr. Metastatic to pituitary adenoma. *Arch Pathol Lab Med* 1985;109:287-289.
- Post KD, McCormick FC, Hays AP, Kandji AG. Metastatic carcinoma to pituitary adenoma. Report of two cases. *Surg Neurol* 1989;30:286-292.
- Burns WA, Kadar AT. Unusual metastases from a transitional-cell carcinoma of the renal pelvis and ureter. *Med Ann Dist Columbia* 1973;42:65-66.
- James RL, Jr, Arsenis G, Stoler M, Nelson C, Baran D. Hypophyseal metastatic renal cell carcinoma and pituitary adenoma. Case report and review of the literature. *Am J Med* 1984;76:337-340.
- Ramsay JA, Kovacs K, Scheithauer BW, Ezrin C, Weiss MH. Metastatic carcinoma to pituitary adenomas: a report of two cases. *Exp Clin Endocrinol* 1988;92:69-76.
- Abou-Hamden A, Koszyca B, Carney PG, Sandhu N, Blumbers PC. Metastatic adenocarcinoma to a pituitary adenoma. *Ann Diagn Pathol* 2001;5:354-360.
- Thewittcharoen Y, Shuangshosti S, Lerleens S, Siwanuwat R, Sunthornvithin S. Colorectal cancer manifesting with meningioma to prolactinoma: report of a case involving symptoms mimicking pituitary apoplexy. *Intern Med* 2014;53:1965-1969.
- van Seters AP, Bots GT, van Dulken H, Luyendijk W, Vielvoey GJ. Metastasis of an occult gastric carcinoma suggesting growth of a prolactinoma during bromocriptine therapy: a case report with a review of the literature. *Neurosurgery* 1985;16:813-817.
- Abe T, Matsumoto K, Iida M, Hayashi M, Sanno N, Osamura RY. Malignant carcinoid tumor of the anterior mediastinum metastasis to a prolactin-secreting pituitary adenoma: a case report. *Surg Neurol* 1997;48:389-394.
- Hurler TR, D'Angelo CM, Clasen RA, DiGianfilippo A, Ryan WG. Adenocarcinoma metastatic to a growth-hormone-secreting pituitary adenoma: case report. *Surg Neurol* 1992;37:361-365.
- Abou-Hamden A, Koszyca B, Carney PG, Sandhu N, Blumbers PC. Metastasis of renal cell carcinoma to a hemangioblastoma of the spinal cord in von Hippel-Lindau disease: case report and review of the literature. *Pathology* 2003;35:224-227.
- Altinoz MA, Santaguida C, Guio MC, Del Maestro RF. Spinal hemangioblastoma containing metastatic renal cell carcinoma in von Hippel-Lindau disease. Case report and review of the literature. *J Neurosurg Spine* 2005;3:495-500.
- Bret P, Streichenberger N, Guyotat J. Metastasis of renal carcinoma to a cavernous hemangioblastoma in a patient with von Hippel Lindau disease: a case report. *Br J Neurosurg* 1999;133:413-416.
- Hamazaki S, Nakashima H, Matsumoto K, Taguchi K, Okada S. Metastasis of renal cell carcinoma to central nervous system hemangioblastoma in two patients with von Hippel-Lindau disease [Case Reports]. *Pathology International* 51:948-953.
- Janjoom A, Kane N, Nicoll J. Metastasis of a renal carcinoma to a cerebellar haemangioblastoma in a case of von Hippel-Lindau disease. *Neurosurg Pathol* 1992;15:231-234.
- Jarell ST, Vortmeyer AO, Linehan WM, Oldfield EH, Lonsler RR. Metastases to hemangioblastomas in von Hippel-Lindau disease. *J Neurosurg* 2006; 105:256-263.
- Mottlesse C, Stan H, Giordano F, Frappaz D, Alexei D, Streichenberger N. Metastasis of clear cell renal carcinoma to cerebellar hemangioblastoma in von Hippel Lindau disease: rare or not investigated? *Acta Neurochir (Wien)* 2001;143:1059-1063.
- Polydorides AD, Rosenblum MK, Edgar MA. Metastatic renal cell carcinoma to hemangioblastoma in von Hippel-Lindau disease. *Arch Pathol Lab Med* 2007;131:641-645.
- Wakita S, Tamiya A, Higuchi Y, Kikuchi H, Kubota M, Ikegami S, et al. Metastasis of renal cell carcinoma to spinal hemangioblastoma in a patient with von Hippel-Lindau disease: a case report. *Neurochirurgia* 2012;73:425-427.
- Xie S, Wang X, Li Z, Zhang Y. Hemangioblastoma as the host for metastatic renal cell carcinoma in a patient with von Hippel Lindau disease: a case report. *Asian J Surg* 2022.
- Xiong J, Chu SG, Wang Y, Zhu JJ, Li C, Mao Y. Metastasis of renal cell carcinoma to a hemangioblastoma of the medulla oblongata in von Hippel-Lindau syndrome. *J Clin Neurosci* 2010;17:1213-1215.
- Crockard HA, Barnard RO, Isaacson PG. Metastasis of carcinoma to hemangioblastoma cerebelli: case report. *Neurosurg* 1988;23:382-384.
- Noh MG, Moon KS, Kim IY, Lee JH, Lee KH. Tumor-to-tumor metastasis of breast carcinoma to cervical spinal schwannoma: case report. *Br J Neurosurg* 2015;29:435-437.
- Saliba J, Buckwalter NR, Reisman N, Mastrodimos B, Cueva RA. Tumor-to-tumor metastasis from a breast carcinoma to a vestibular schwannoma. *Otol Neurotol* 2019;40:e66-e68.
- Wallach JB, Edberg S. Metastases of cancer to primary intracranial tumor. *Arch Neurol* 1959;1:191-194.
- Wessel H, Gerlach H. Metastases of a breast cancer to an acoustic neuroma. *Zentralbl Allg Pathol* 1973;117:146-151.
- Wong TW, Benington JL. Metastasis of a mammary carcinoma to an acoustic neuroma. Report of a case. *J Neurosurg* 1962;19:1088-1093.
- Fukushima E, Ota T, Mukasa A, Uozaki H, Kawai K, Saito N. Tumor-to-tumor metastasis: lung adenocarcinoma metastasizing to vestibular schwannoma suspected on preoperative [18F]-fluorodeoxyglucose positron emission tomography imaging. *World Neurosurg* 2012;78:553.e559-553.e513.
- LeBlanc RA. Metastasis of bronchogenic carcinoma to acoustic neuroma. Case report. *J Neurosurg* 1974;41:614-617.
- Tang GC, Piao YS, Zhao L, Lu DH. Lung adenocarcinoma metastasizing to cerebellopontine angle schwannoma (collision tumor). *Acta Neurochir (Wien)* 2007;149:87-90; discussion 90.
- Schweisinger G, Pusinelli W, Lindl WD. Acoustic neuroma with metastases of hepatocellular carcinoma of the stomach. *Zentralbl Allg Pathol* 1974;118:473-475.
- Yang MJ, Arkun K, Heilmann CB. Tumor-to-tumor metastasis of hepatocellular carcinoma to vestibular schwannoma. *World Neurosurg* 2019;128:324-327.
- Mörk SJ, Rubinstein LJ. Metastatic carcinoma to glioma: a report of three cases with a critical review of the literature. *J Neurol Neurosurg Psychiatry* 1988;51:256-259.
- Tajika Y, reifenberger G, Kivitt JC, Wechsler W. Metastatic adenocarcinoma in cerebral astrocytoma: clinicopathological and immunohistochemical study with review of the literature. *Acta Neurochir (Wien)* 1990;105:50-55.
- Tanboon J, Pongpaibul A, Chawalparit O, Wasinrat J, Witthiwe T, Perry A. A 53-year-old woman with progressive headaches. *Brain Pathol* 2014;24:679-680.
- Franke FE, Altmannberger M, Schachenmayr W. Metastasis of renal carcinoma colliding with glioblastoma. *Carcinoma to glioma: an event only rarely detected. Acta Neuropathol* 1990;80:448-452.
- Posnikoff J, Stratford J. Carcinoma metastasis to malignant glioma; case report. *Arch Neurol* 1960;3:559-563.
- Strang RR. Metastasis of a breast carcinoma to an intracerebral oligodendroglioma. *Zentralbl Neurochir* 1965;25:206-210.
- Tally PW, Laws ER, Jr, Scheithauer BW. Metastases of central nervous system neoplasms. Case report. *J Neurosurg* 1988;68:811-816.
- Wurm G, Huber A, Hiertz H, Fischer J, Cervatos-Navarro J. Composite metastasis and oligodendroglioma: an exceptional form of mixed neoplasia. *Neurosurg Rev* 1994;17:291-294.
- Farnsworth J. Regressing melanoma metastasizing to an oligodendroglioma. *Pathology* 1972;4:253-257