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Calcitonin in Fine Needle Aspiration Washout Fluids in Medullary Thyroid Carcinoma : Case Series

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Background/Aims: Due to the low accuracy of cytologic diagnosis, diagnosis of medullary thyroid carcinoma (MTC) has been a major challenge in clinical practice. Serum calcitonin is a highly sensitive marker in diagnosing medullary thyroid cancer. Recently, the measurement of calcitonin in fine needle aspiration washout fluids (CT-W) has been reported as another sensitive marker for the diagnosis of MTC. The aim of the study is to review the cases at our center and to provide more specific data in clinical practice. **Methods:** This study retrospectively reviewed 53 patients diagnosed with MTC at our institution from January 2010 to May 2019. Twenty-two of the 53 patients underwent fine needle aspiration, and both nodule and lymph node were aspirated simultaneously in six patients. Two of these patients underwent aspiration in two lymph nodes; thus, a total of eight lymph node washout fluids were identified. **Results:** A total of three aspirated lymph nodes were identified as metastatic MTC lymph nodes. The median CT-W value were 114894.7 (range 43670.0 - 164180.0 pg/ml) in MTC lymph nodes and 55.9 in benign lymph nodes (range 19.1 - 129.7 pg/ml) (p=0.036). **Conclusions:** Analysis of our eight cases showed that CT-W values were higher in metastatic MTC lymph nodes than in benign lymph nodes. Clinically, CT-W is expected to provide clinically useful information, especially if the results of serum calcitonin are inconsistent with clinical features.

Table. The association of serum calcitonin and calcitonin in fine needle aspiration washout fluids in patients with MTC

Cases	Sex	Age	Size of primary lesion (mm)	Serum calcitonin (pg/ml)	Lymph node CT-W [a] (pg/ml)	Histology of lymph node	RET
1	F	39	37	5441.0	129.7	Benign	Not detected
2	F	56	25	712	29.6	Benign	Not detected
3	F	56	20	816.6	44.2	Benign	NA
4 [b]	F	51	6	81.9	**136834.0**	**MTC**	NA
5 [b]	F	51	6	81.9	19.1	Benign	NA
6	F	80	12	7896.0	**43670.0**	**MTC**	NA
7 [c]	M	44	50	3384.0	**164180.0**	**MTC**	Not detected
8 [c]	M	44	50	3384.0	59.8	Benign	Not detected

[a] CT-W, calcitonin in fine needle aspiration washout fluids; [b] case 4 and 5 are the same patient; [c] case 7 and 8 are the same patient; NA, not available