INTRODUCTION:
Malignant peripheral nerve sheath tumors (MPNST) commonly develop in patients with neurofibromatosis. Differentiation of benign from malignant tumors by conventional preoperative imaging is unreliable.

FDG-PET is a non-invasive technique for biological tumor evaluation. The aim of this study was to assess the value of FDG-PET in patients with neurogenic tumors.

METHODS:
FDG-PET was performed on 18 cases, 39 neurogenic tumors. It was 13 males, and 5 females, average age was 49 years old. Among them von Recklinghausen disease was 12 cases (30 neurogenic tumors), and neurinoma was 6 cases (9 neurogenic tumors). Autopsy was performed in 9 tumors, resection in 8 tumors, biopsy in 5 tumors. We investigated standardised uptake value (SUV) in FDG - PET, the diagnosis, tumor length in MRI or CT.

When we performed biopsy and an operation, we did pathological diagnosis. When we did not perform biopsy and an operation, we defined the thing which we did not show in variation in magnitude of tumor more than six months in touch or in image as benign clinically. After the intravenous injection of 370 – 440 MBq of 18-FDG, serial images were obtained during a total acquisition time of 50 min. Final images (55–60 min post-injection) were used for quantitative analysis. The maximum standard uptake value (SUVmax) was calculated for analysis in this study.

SUV=(tissue concentration (MBq/g)/injected dose (MBq))/body weight (g).

RESULTS:
We got pathological diagnosis from 22 tumors. Benign was 9 tumors, and the malignancy was 6 tumors that von Recklinghausen disease did malignant transformation. We judged 17 other tumors to be benign from clinical course.

Malignant tumors showed larger size (n=15; median 5.6; range 2–12) compared to benign tumors (n=24; median 4.2; range 1–15.2; p=0.23).

Malignant tumors showed higher FDG uptake (n=15; median 5.5; range 3.5–9.5) compared to benign tumors (n=24; median 2.9; range 0–5.0; p=0.001) (Figure 3).

The best cut-off value was 4.9 SUV using ROC curve, which gave a sensitivity of 66.7% and specificity of 91.6%.

DISCUSSION
There is several reports when we examine it about neurogenic tumor and F DG - PET. As for Cardona, SUV mean value 1.1 is malignant and it is 2.9 and describes cutoff value with 1.8. As for Ahmed, Watanabe, SUV of schwannoma reports that it is 3.7 from 0.33. Ferner reports SUV 1.54 of benign tumor with 5.4 in malignant.

CONCLUSION
1. The FDG - PET was useful for diagnosis of neurogenic tumor.
2. Malignant tumors showed higher FDG uptake (median 5.5) compared to benign tumors (median 2.9).
3. When FDG-SUV of the neurogenic tumor is higher more than 4.9, it is likely to be MPNST.