

A multicenter study on endoscopic management of esthesioneuroblastoma



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Abstract

Background: The aim of the present study was to illustrate the utility of the multilayer resection of esthesioneuroblastomas (ENB) using endoscopic endonasal approach (EEA).
Methodology: We retrospectively reviewed patients treated at 10 tertiary referral hospitals in Japan with a diagnosis of ENB.
Results: A total of 32 patients (16 males and 16 females; mean age at presentation, 51.3 year) underwent multilayer resection of ENBs using EEA. Thirty patients were newly diagnosed and two presented with recurrent disease. Dulguerov staging at presentation was T1, 6 patients; T2, 10 patients; T3, 8 patients; and T4, 8 patients. EEA alone was performed in 24 patients, and EEA with transcranial approach was performed in 8 patients. The mean period of follow-up was 38 months, ranging from 5 to 103 months. No post-operative complications were identified. Pathological margin studies revealed margin-free resections in 31 patients (96.9%). Distant metastasis was found in one patient. No patients had evidence of disease at the last follow-up. Of the 14 patients who underwent EEA alone with intentional preservation of olfaction, preservation was achieved in 13 patients.
Conclusions: The results of the present study indicate the safety and utility of multilayer resection using EEA for treatment of ENBs.

Introduction

- ◆ Esthesioneuroblastoma (ENB), or olfactory neuroblastoma, is a rare malignant tumor arising in the nose and/or skull base.
 - ◆ The combination of surgical resection and post-operative radiotherapy has become the standard treatment for ENB.
 - ◆ An endoscopic endonasal approach (EEA) has gained acceptance as a standard for surgical treatment of ENB based on remarkable progress in technology. We initiated the use of multilayer resection using EEA for surgical treatment of ENBs in 2008.
- We used Dulguerov staging to determine surgical approach for resection of ENBs.
 - For T1 or T2 tumors, EEA was planned.
 - For T3 or T4 tumors, we chose a surgical approach, EEA or EEA with transcranial approach, according to the extent of the primary lesion in the intracranial and/or orbital.
 - In cases that were planned EEA, unilateral or bilateral resection was chosen depending on the presence of contralateral invasion.
 - Based on the concepts outlined above, we performed multilayer resection using EEA in 32 cases of ENBs.
 - Herein, we report the safety and utility of the multilayer resection using EEA in our case series.

Methods and Materials

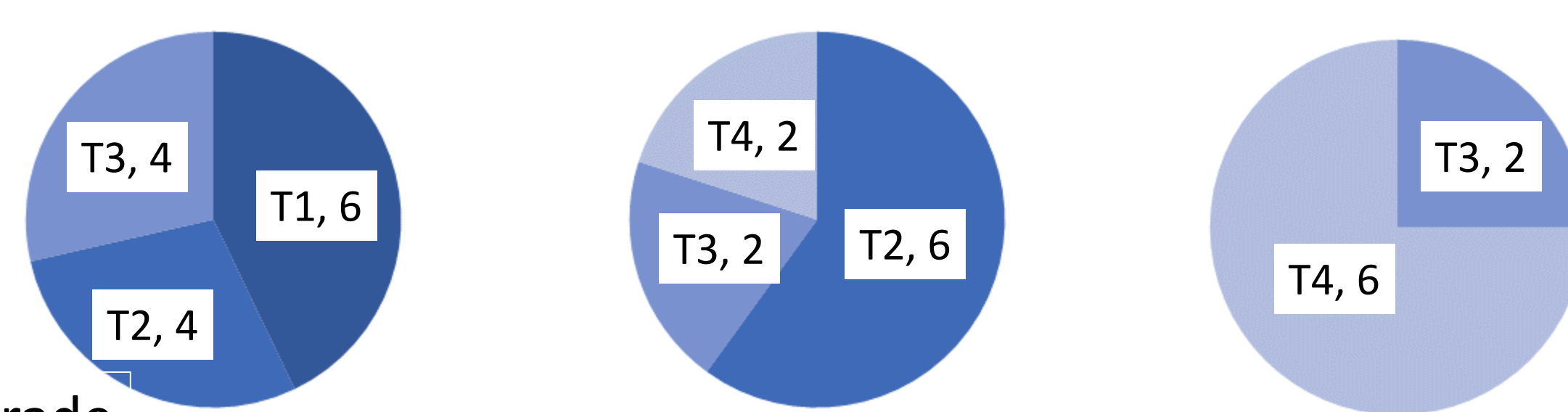
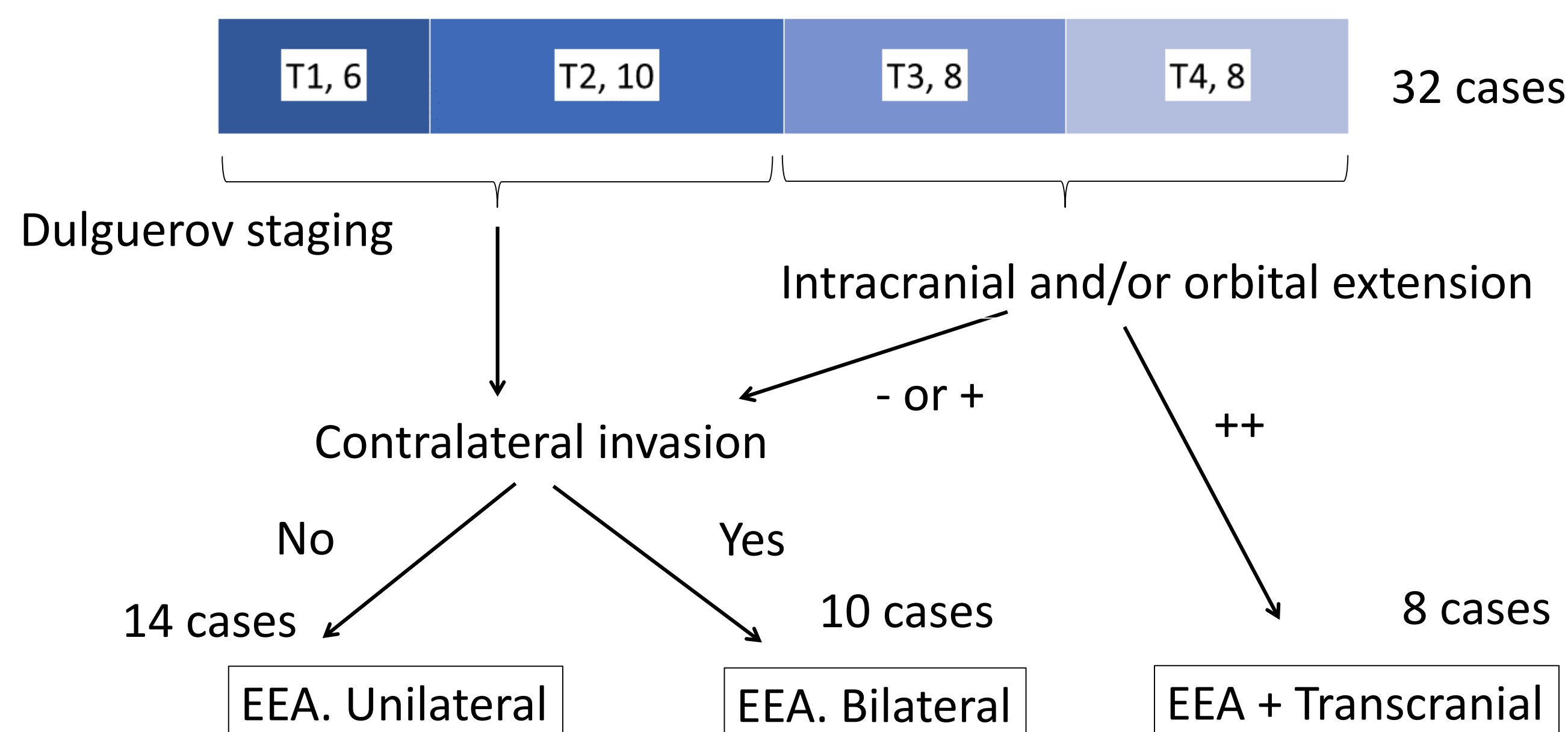
- ◆ A retrospective chart review of patients with a diagnosis of ENB between March 2008 and February 2016
- ◆ At 10 tertiary referral hospitals in Japan (Kyoto University Hospital, Oita University Hospital, Mie University Hospital, Kumamoto University Hospital, University of Tsukuba Hospital, Chiba University Hospital, Aichi Cancer Center, Japan Red Cross Medical Center, Kyorin University Hospital and Nagoya City University Hospital)

Patient records were reviewed for

- demographic information,
- clinical stage (modified Kadish classification and Dulguerov classification), histological grading (Hyams' grading),
- pathological margin,
- surgical approach,
- post-operative complications (bleeding, cerebrospinal fluid (CSF) leakage or meningitis),
- preservation of olfaction (assessed by an interview, presence or not)
- post-operative treatment,
- length of follow-up,
- disease status at last follow-up.

Results

Mean age: 51.3 years; Male: 10, Female: 17; Newly diagnosed: 30, Recurrent: 2
 Mean follow-up period: 40.3 months (7-104)



Hymas grade

I	2	0	1
II	10	9	6
III	2	1	1

Margin study

Free	14	9	8
Positive	0	1	0

Post-op radiotherapy

Done	11	10	7
None	3	0	1

Olfaction preservation

Yes	13
No	1

Post-op complications

CSF leak	0	0	0
Bleeding	0	0	0

Recurrence

Local	0	1	0
Distant	0	0	1

Final status

No evidence of disease	14	9	8
Alive with disease	0	1	0

Discussion

- ◆ ENB resection with clear margin in over 90% cases, no major post-operative complications and successful preservation of olfaction indicate the safety and utility of our surgical modality.
- ◆ Oncologic outcomes in our series should be reassessed following long-term observation.

Conclusions

The present results support the thesis that the multilayer resection via EEA is safe and efficacious for the treatment of ENBs. The preservation of olfactory function may be considered for ENBs showing no invasion in the contralateral side.

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