

LETTER

Toward the optimal surgical treatment of hypothalamic hamartoma

To the Editors:

We read with great interest the study reported by Shirozu et al. concerning semimicrorecordings during stereotactic thermocoagulation of hypothalamic hamartoma (HH).¹ The surgical treatment of HH has been the subject of many innovations in recent years, with the introduction of laser coagulation² and endoscopic³ or stereotaxic thermocoagulation.⁴ Initial data suggested a lower complication rate, with equal efficacy, in multiple-radiofrequency thermocoagulations and laser coagulations, through either stereotactic or robot-guided endoscopy, compared to laser interstitial therapy (LiTT).⁵ However, the introduction of resting state functional magnetic resonance imaging (rsfMRI) targeting of the HH region has reduced the complications reported with LiTT.⁶ The study published by Shirozu et al. is the first to report microrecordings achieving targeting¹ within the hamartoma on the same principle as rsfMRI. Although the rsfMRI is a noninvasive technique, its posttreatment is based on a statistical analysis and depends on many physical parameters, making its use difficult for the moment, outside of the expert team⁶ that developed the analysis. On the contrary, electrophysiological recordings by microelectrodes are a technique familiar to most medicosurgical teams doing deep brain stimulation and are extremely reproducible. Nevertheless, targeting before each coagulation will require multiple transparenchymal stereotaxic trajectories, thus increasing the risks of side effects. In contrast, the placement of an intraventricular endoscope with a single robot-guided path, targeting the center of the hamartoma surface, will subsequently allow multiple targetings to be performed with the stereotactic precision of the robot. A single intraventricular working channel therefore allows the placement of the microrecording electrode and then a laser fiber or thermocoagulation probe, in multiple locations, theoretically lowering the risks and allowing direct control, in real time, of the coagulations.

Finally, as in temporomesial epilepsy, the efficacy of surgery in HH-related epilepsy has been proven, and its accessibility in developing countries should be taken into account. The cost of LiTT probes remains high, as multiple

trajectories are often required and few centers are available for stereotactic MRI-compatible equipment. Placement of a multiple-use laser or thermocoagulation probe through an endoscope, however, is inexpensive.

All of these considerations encourage gathering single techniques developed by different teams: using a single intraventricular robot-guided working channel (1), to perform multiple microrecordings to target the lesion (2), prior to performing a real-time endoscopic-monitored multiple laser (or radiofrequency) coagulation (3).

ACKNOWLEDGMENT


We thank Dr Damon DePaoli of Harvard Medical School for help in manuscript preparation and English editing.

CONFLICT OF INTEREST

None of the authors has any conflict of interest to disclose.

ETHICAL PUBLICATION STATEMENT

We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.

Pierre Bourdillon¹ 
 Sarah Ferrand-Sorbets²
 Laurent Goetz²
 Georg Dorfmueller²

¹Department of Neurosurgery, Foundation Adolphe de Rothschild Hospital, Paris, France

²Department of Pediatric Neurosurgery, Foundation Adolphe de Rothschild Hospital, Paris, France

Correspondence

Pierre Bourdillon, Hospital Fondation Adolphe de Rothschild, 29 rue Manin, Paris 75019, France.
 Email: pierre.bourdillon@neurochirurgie.fr

ORCID

Pierre Bourdillon  <https://orcid.org/0000-0002-8441-1311>

REFERENCES

1. Shirozu H, Masuda H, Kameyama S. Significance of the electrophysiological border between hypothalamic hamartomas and the hypothalamus for the target of ablation surgery identified by intraoperative semimicrorecording. *Epilepsia*. 2020;61(12):2739–47.
2. Curry DJ, Raskin J, Ali I, Wilfong AA. MR-guided laser ablation for the treatment of hypothalamic hamartomas. *Epilepsy Res*. 2018;142:131–4.
3. Ferrand-Sorbets S, Fohlen M, Delalande O, Zuber K, Bulteau C, Levy M, et al. Seizure outcome and prognostic factors for surgical management of hypothalamic hamartomas in children. *Seizure*. 2020;75:28–33.
4. Kameyama S, Shirozu H, Masuda H, Ito Y, Sonoda M, Akazawa K. MRI-guided stereotactic radiofrequency thermocoagulation for 100 hypothalamic hamartomas. *J Neurosurg*. 2016;124(5):1503–12.
5. Bourdillon P, Ferrand-Sorbets S, Apra C, Chipaux M, Raffo E, Rosenberg S, et al. Surgical treatment of hypothalamic hamartomas. *Neurosurg Rev*. 2020. doi:10.1007/s10143-020-01298-z.
6. Boerwinkle VL, Foldes ST, Torrisi SJ, Temkit H, Gaillard WD, Kerrigan JF, et al. Subcentimeter epilepsy surgery targets by resting state functional magnetic resonance imaging can improve outcomes in hypothalamic hamartoma. *Epilepsia*. 2018;59(12):2284–95.

How to cite this article: Bourdillon P, Ferrand-Sorbets S, Goetz L, Dorfmueller G. Toward the optimal surgical treatment of hypothalamic hamartoma. *Epilepsia*. 2021;62:557–558. <https://doi.org/10.1111/epi.16803>

Epilepsia – February 2021 – Announcements

ILAE Congresses

XI Congreso Latinoamericano de Epilepsia

27 February–1 March 2021

Modalidad Presencial a Distancia | Virtual Congress

<https://www.epilepsycongress.org/lace/>

13th Asian and Oceanian Epilepsy Congress (AOEC)

10–13 June 2021

Fukuoka, Japan

<https://www.epilepsycongress.org/aoec/>

34th International Epilepsy Congress

28 August–1 September 2021

Paris, France

<https://www.epilepsycongress.org/iecc/>

11th International Summer School for Neuropathology and Epilepsy Surgery (INES 2021)

9–12 September 2021

University Hospital, Erlangen, Germany

<https://www.ilae.org/congresses/11th-international-summer-school-for-neuropathology-and-epilepsy-surgery-ines-2021>

14th European Congress on Epileptology (ECE)

9–13 July 2022

Geneva Switzerland

<https://www.epilepsycongress.org/eec/>

ILAE Webinars (<https://www.ilae.org/congresses/webinars>)

ILAE Eastern Mediterranean Regional Board (ILAE-EMR) Webinars in French and English

Monthly webinars covering various subjects of epilepsy, ranging from basic to advanced, from neonatal epilepsy to issues in the elderly, chosen according to the needs of and suggestions from members of chapters in the Eastern Mediterranean region. See all future and past webinars (<https://www.ilae.org/regions-and-countries/regions/ilae-eastern-mediterranean/events>).

Young Epilepsy Section (YES) Webinars

The ILAE-YES Epilepsy Webinars provide educational content and hot topics in epilepsy care and research, presented by international experts. Join the live broadcast or browse the database of previous talks here (<https://www.ilae.org/about-ilae/topical-commissions/yes/young-epilepsy-section-yes>).

Canadian Epilepsy Teaching Network of the Canadian League Against Epilepsy (CLAE)

Monthly virtual rounds given by national and international experts in epilepsy. Sessions follow the ILAE competency-based curriculum. Fridays at 12 noon Eastern Time. See list of programs and register here (<https://www.claegroup.org/CETN-Program>).

Other Congresses

Fetal and Neonatal Neurology Congress

3–5 March 2021

Paris, France

<https://www.mcascientificevents.eu/brain/>

65th Annual Meeting: DGKN 2021. German Society for Clinical Neurophysiology and Functional Imaging

10–12 March 2021
Frankfurt, Germany
<https://www.dgkn-kongress.de/index.php?id=618>

1er Curso Latinoamericano Teórico Práctico de Electroencefalografía Clínica

8–10 April 2021
Santiago, Chile
<https://www.ilae.org/congresses/1er-curso-latinoamericano-te-rico-pr-ctico-de-electroencefalograf-a-cl-nica>

Treatment Strategies in Pediatric Epilepsies 2nd cycle, 1st EPIPED course

21–24 April 2021
Girona, Spain
<https://www.epiped-course.com/>

Epilepsy 2020: A Vision of the Future in Epilepsy Research

7–8 May 2021
Montreal Neurological Institute-Hospital (the Neuro) in Canada
<https://www.ilae.org/congresses/epilepsy-2020-a-vision-of-the-future-in-epilepsy-research>

International Training Course on Neuroimaging of Epilepsy

13–16 May 2021
McConnell Brain Imaging Centre, Montreal, Canada
<https://www.mcgill.ca/neuro/channels/event/international-training-course-neuroimaging-epilepsy-virtual-321235#:~:text=The%20International%20Training%20Course%20on%20Neuroimaging%20of%20Epilepsy,W.%20Penfield,%20is%20a%20renowned%20epilepsy%20surgery%20center>

2021 Advanced San Servolo Epilepsy Course Bridging Basic With Clinical Epileptology – 7: Accelerating Translation in Epilepsy Research

20–31 July 2021

San Servolo (Venice), Italy
<https://www.ilae.org/congresses/2020-advanced-san-servolo-epilepsy-course>

Annual Meeting on Imaging in Epilepsy, Epilepsy Surgery, Epilepsy Research and Cognitive Neurosciences (AMIE 2021)

13–15 September 2021
Bochum, Germany
<https://www.ilae.org/congresses/annual-meeting-on-imaging-in-epilepsy-epilepsy-surgery-epilepsy-research-and-cognitive-neurosciences-amie-2021>

Summer School on Imaging in Epilepsy, Epilepsy Surgery, Epilepsy Research, and Cognitive Neurosciences (SuSIE 2021)

15–17 September 2021
Bochum, Germany
<https://www.ilae.org/congresses/summer-school-on-imaging-in-epilepsy-epilepsy-surgery-epilepsy-research-and-cognitive-neurosciences-susie-2021>

11th EPODES – Epilepsy Surgery – Basic

27 September – 1 October 2021
Brno, Czech Republic
<http://www.ta-service.cz/epodes2021>

2021 ILAE British Branch Annual Scientific Meeting

28–30 September 2021
Cardiff, UK
<https://www.ilaebritishconference.org.uk/>

9th Eilat International Educational Course: Pharmacological Treatment of Epilepsy

10–15 October 2021
Jerusalem, Israel
<https://www.eilatedu2021.com/>

7th UAE Epilepsy Congress

29–30 October 2021

Dubai, UAE
<http://congress2020.eiae.ae/>

2022

5th Dianalund Summer School on EEG and Epilepsy

16–23 July 2022
Dianalund, Denmark
<https://www.ilae.org/congresses/5th-dianalund-summer-school-on-eeeg-and-epilepsy>

EPNS: 14th European Paediatric Neurology Society Congress: Precision in Child Neurology

28 April – 2 May 2022

Glasgow, UK
“Hybrid” event combining both a physical meeting in Glasgow with virtual attendance also possible.
<https://epns-congress.com/>

2023

15th European Paediatric Neurology Society Congress (EPNS): From Genome and Connectome to Cure

20–24 June 2023
Prague, Czech Republic
<https://www.epns.info/epns-congress-2023/>