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## Judith Balkányi-Lepintre (1912–1982): first woman neurosurgeon, first woman war neurosurgeon, and first woman pediatric neurosurgeon in France

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Recently, a series of historical reports portrayed the first women neurosurgeons in various countries. One such woman, a pioneer on many levels, remained unrecognized: Judith Balkányi-Lepintre. She was the first woman neurosurgeon in France, the first woman war neurosurgeon for the French Army, and the first woman pediatric neurosurgeon in France. Born in 1912 to a Hungarian Jewish family, she graduated with honors from medical school in Budapest in 1935, then moved to Paris where she started neurosurgical training in 1937 at L'Hôpital de la Pitié under the mentorship of Clovis Vincent, the founder of French neurosurgery. Shortly after marrying a French colleague in 1940, she had to escape the Geheime Staatspolizei (Gestapo) in Paris and ended up in Algeria, where she joined the French Army of De Gaulle. As a neurosurgeon, she participated in the campaigns of Italy and France between 1943 and 1945. After the war, she returned to work at La Pitié Hospital. In 1947, she defended her doctoral thesis, "Treatment of cranio-cerebral wounds by projectiles and their early complications." Soon thereafter, she joined Europe's first dedicated children's hospital, Hôpital Necker-Enfants Malades in Paris, and contributed to the establishment of pediatric neurosurgery in France. She remained clinically and academically active at Necker until her death in 1982 but was never promoted.

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**R**ECENTLY, there has been an interest in unearthing and exploring the missing historical figures among pioneering women in the neurosurgical field, and many papers have been dedicated to this issue.<sup>1–8</sup> Unfortunately, one major figure has remained unrecognized: Judith Balkányi-Lepintre, a Hungarian-French neurosurgeon, who was not only the first woman neurosurgeon in France but also the first woman war neurosurgeon for the French Army and eventually the first woman pediatric neurosurgeon in France. This vignette provides an account of her neurosurgical career.

### Judith's Trajectory

Judith Balkányi (Fig. 1) was born on July 4, 1912, to a Jewish family in Budapest. She attended medical school at the Royal Hungarian Peter Pázmány University of Sciences of Budapest, the predecessor of Semmelweis University,

and graduated with outstanding grades in May 1935 (Fig. 2). In 1936 she left Hungary, first for Basel, Switzerland, for a brief stay in a neurology department, and then on to Paris. After a brief stay at the laboratories of Professors Louis Lapicque (neurophysiologist, inventor of the concept of "chronaxie") and René Agid, she decided to pursue a career in neurosurgery. In 1937 she started her training at the L'Hôpital de la Pitié in the department of Clovis Vincent, the cofounder (with Thierry de Martel) of French neurosurgery. Vincent, a neurologist trained by Joseph Babinski, was encouraged by the latter to become a neurosurgeon. Vincent spent some time with Harvey Cushing in the United States, then in 1933 established at La Pitié Hospital in Paris the first department in France dedicated to neurosurgery, and he was subsequently appointed to the first established university chair of neurosurgery.

In 1940 Judith married Dr. Yves Lepintre. After the Nazi occupation of Paris, the pro-German French govern-

**ABBREVIATIONS** Gestapo = Geheime Staatspolizei; WWII = World War II.

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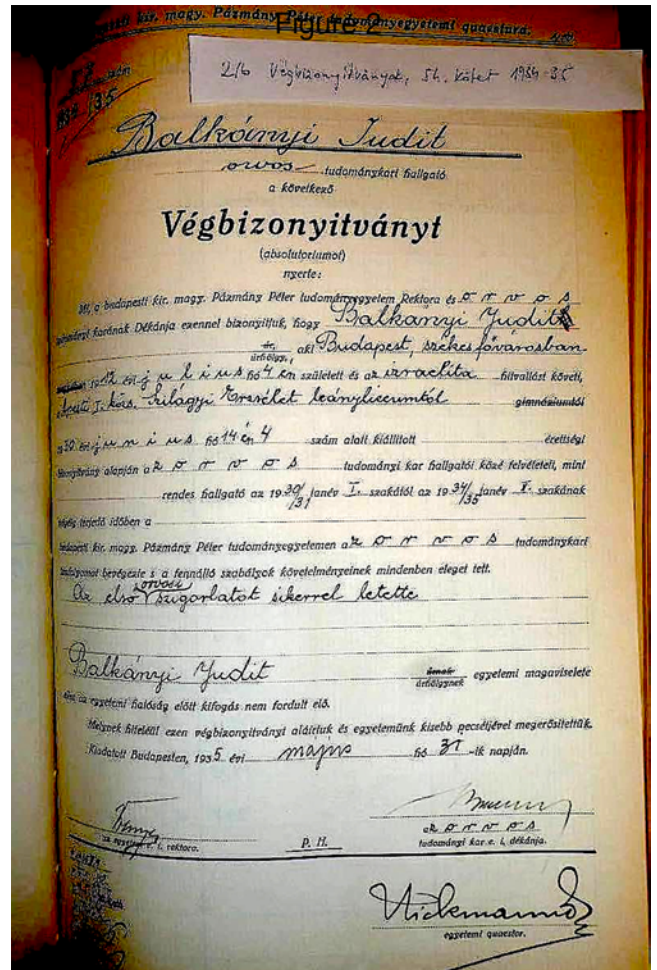


**FIG. 1.** Photograph of Judith Balkányi-Lepintre. Courtesy of Dr. Claude Lepintre. Figure is available in color online only.

ment required her to carry a star of David, which she refused to do. When the Geheime Staatspolizei (Gestapo) arrived at her home to arrest her, her husband, who was alone at the apartment, jumped from a window and rushed to the hospital where she worked to alert her. She had to leave Paris, and traveling through Spain, she ended up in Algeria's capital Algiers. While her husband joined the French Resistance, Judith joined the French Army of De Gaulle in North Africa and started working at the Hôpital Maillot, where she cared for patients with cranial war trauma. Between 1943 and July 1945, as a neurosurgeon she was affiliated with the First French Army during the Allied forces' Italian campaign and subsequently the French and finally the German campaigns. She was then demobilized after receiving the rank of sous-lieutenant and was awarded the Croix de Guerre (War Cross).<sup>9</sup> She returned to La Pitié Hospital where she wrote, under the mentorship of Clovis Vincent, her doctoral thesis, "Treatment of cranio-cerebral wounds by projectiles and their early complications," which she defended in February 1947 at the Faculté de médecine de Paris. Later that year, she joined the Hôpital Necker-Enfants Malades to care for pediatric neurosurgical patients, and she created within the department of general surgery a secteur ("wing") for neurosurgery that became in 1970 a full Department of Pediatric Neurosurgery, where she stayed until her death in January 1982 at the age of 69.

### War Neurosurgery

The original copy of Judith's doctoral thesis from 1947 is in the custody of the Bibliothèque Interuniversitaire de Santé in Paris (OCLC no.: 494869139, Numéro d'ordre: 110; Fig. 3). According to French medical academic tradition, a doctoral thesis starts with a listing of all professors



**FIG. 2.** Photocopy of Judith's medical diploma delivered in Budapest on May 31, 1935. Courtesy of the Semmelweis Archives, Semmelweis University, Budapest. Figure is available in color online only.

of the faculty of medicine by name and specialty, and then various acknowledgments are presented, first to the president and main supervisor of the thesis, then to other senior colleagues in the field. Judith wrote, "To my master and president of thesis Mr. Professor Clovis Vincent professor of clinical neurosurgery who in 1937 kindly accepted me in his department and did me the great honor of teaching me himself neurosurgery, making me profit during the six years I spent at his side from the treasure of his clinical genius and his tremendous experience" (Fig. 4). Among others acknowledged by Judith were professors working in Algeria at the medical faculty and Department of Neurosurgery in the capital Algiers.

The thesis deals with the treatment of cranial-cerebral wounds caused by projectiles and their early complications in 334 patients between May 1944 and July 1945 during the campaigns of Italy, France, and Germany of the First French Army (la première armée française). She gives a detailed description of various casualties grouped into categories based on what kind of cranio-cerebral trauma the soldiers sustained (penetrating injuries, tangential injuries, blasts injuries, etc.) and when after the



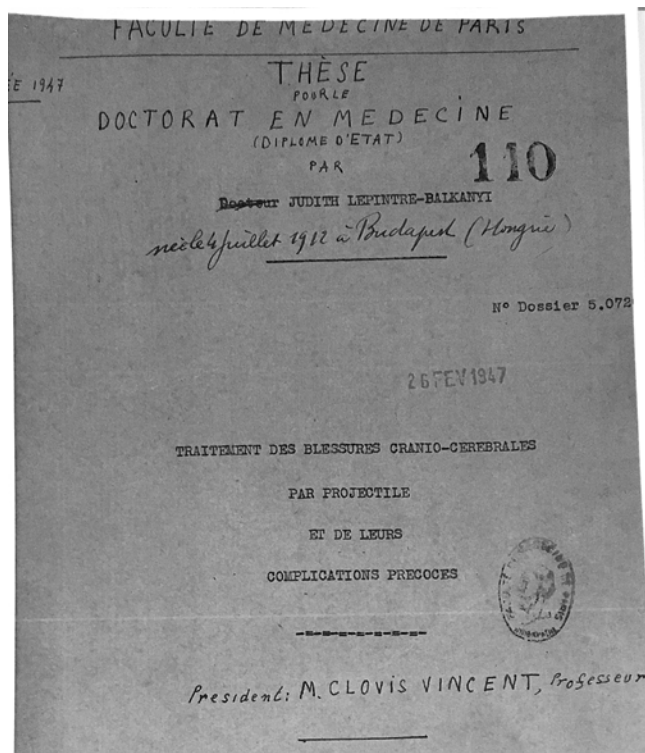


FIG. 3. Photocopy of the first page of Judith's doctoral thesis, dated February 26, 1947.

trauma they underwent surgery (within 24 hours, between 24 and 48 hours, or later) and including details of the surgical methods used and the patients' clinical condition before and after surgery. The thesis extensively quotes the experience of Harvey Cushing from the First World War concerning the importance of the early management of patients; the initial treatment of shock and severe anemia; the surgical techniques; the need to extract as much debris as possible, whether hair, bone pieces, pieces of helmet, mud, etc., that followed the projectile into the brain; and the importance of postoperative care. Throughout the thesis, she emphasizes the dangers of postoperative infection, which was in fact responsible for many of the subsequent fatalities after otherwise successful surgery. Judith describes the great improvement in outcome when the newly discovered penicillin was introduced in the treatment and prophylaxis of war wound infections. In conclusion, she

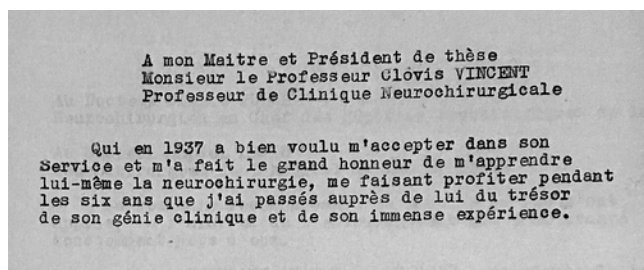


FIG. 4. Judith's acknowledgment to her master and thesis director Professor Clovis Vincent.



FIG. 5. Photographs of the entrance of Necker Hospital for Sick Children and the signs "Secteur Lepintre" in the Department of Pediatric Neurosurgery. Figure is available in color online only.

remarks on the necessity of the army to have mobile, advanced, well-equipped neurosurgical teams and facilities as close as possible to the battlefield to ensure the most optimal, quick, and early care for soldiers with penetrating brain injuries because delays in transporting patients to more remote surgical centers exponentially decrease the chances of survival. It should be noted that in 1943–1945, helicopters were not available to evacuate battlefield patients. Much advice and many conclusions in Judith's remarkable thesis on war neurosurgery are still valid today. In the archives of the Department of Neurosurgery in Limoges—a department that was put at the disposal of the French Resistance against the Germans to receive and treat the wounded of the Maquis in the Limousin region—one can read the following about the neurosurgical team of the First French Army: "Madame Lepintre, neurosurgeon who had created and led this team during the campaigns in North Africa, Italy and South France... a well-established, experienced team, well equipped in terms of personnel and equipment."<sup>10</sup>

### Pediatric Neurosurgery

In 1947 Judith joined the Necker Hospital for Sick Children (Hôpital Necker-Enfants Malades) in Paris. This huge institution was founded in 1820 and is the oldest children's hospital in the Western world. From 1947 until 1970, when an independent Department of Pediatric Neurosurgery was established,<sup>11</sup> Judith worked within the general surgery department. She ran her own neurosurgical activity within a wing that to this day carries the sign reading "Secteur Lepintre" (Fig. 5). There are some published testimonies to her personality and impact during these years. One was made by resident Dr. Jean-François Moreau, who in 1960–1962 published a book entitled *Mémoires Linéaires*.<sup>12</sup> He wrote that when he was doing his rotation in the pediatric general surgery department there was "a small pediatric neurosurgery unit dominated by the personality of an extraordinary woman of Romanian [sic]

origin, Judith Lepintre, whose residents would become dear friends.”

Judith contributed to many papers, most of which are published in French. The Web of Science lists 46 of her publications between 1950 and 1975, spanning a wide spectrum of pediatric neuroradiology and neurosurgery topics: angiography, echo-encephalography, and transillumination in children; hydrocephalus; craniosynostoses, spina bifida, and other CNS malformations; brain, pontine, and medullary tumors and abscesses in toddlers; hypothalamic tumors; neuroblastomas; choroid plexus papillomas; congenital fistulae; CNS tuberculosis and other CNS infections; head and spine trauma, etc. She also contributed a chapter on pediatric brain surgery to the pediatric neurology book of Dr. Robert Debré, the pioneer pediatric neurologist in France who praised her in his autobiography, *L'Honneur de Vivre*. Although it was acknowledged that her work and “extraordinary clinical experience” and the “strength of her character” contributed to the creation of a pediatric neurosurgery department at Necker,<sup>9</sup> she remained an “attached consultant” and was never promoted to head of the department or professor. The reason is that at that time, Judith, who was from Hungary and whose medical degree was from the University of Budapest, was not allowed to attend the specialist examination called the Internat des hôpitaux de Paris, which was (and still is) a requirement in France for physicians to ascend the ladder of hospital and academic promotions.

Among Judith's other contributions was her involvement in the support of various humanitarian issues: in 1971 abortion was still forbidden in France, and the only alternative for women who wished to terminate an early pregnancy was either an abortion performed in the United Kingdom or Switzerland if they could afford the costs or an unskilled underground abortion in France outside of the hospital, which resulted in a staggering annual number of complications and many deaths. In an appeal to the government published in *Le Nouvel Observateur* on April 5, 1971, Judith Lepintre's name appeared among the 120 signatory physicians requesting the right of women to receive free and safe hospital abortions. Abortion was legalized in January 1975 in a law called “la loi Veil,” after the name of the minister of health at the time, Ms. Simone Veil.

## Discussion

Judith Balkányi-Lepintre doubtless had an exciting neurosurgical career with at least three remarkable and unique achievements: to be accepted in 1937 as the first woman and foreigner, whose medical degree was not French, for neurosurgical training at the first established French neurosurgery department, by the founder of French neurosurgery; to be assigned as a field neurosurgeon to the Free French Army during three military campaigns of World War II (WWII) and to be able to document in detail her neurosurgical war experience in a doctoral thesis; and to establish in France the specialty of pediatric neurosurgery.

Although Judith Balkányi-Lepintre was among the first very few women neurosurgeons in the world, she was not mentioned in a very recent publication about Europe's first four female neurosurgeons of the 1920s through the

1950s.<sup>6</sup> In that paper, the authors listed Alice Rosenstein from Breslau, Germany, who completed her training under Otfrid Foerster in 1929; Serafima Bryusova from Moscow, Russia, who trained with Nikolay Burdenko in the 1920s and 1930s at the then recently established Burdenko Institute; Diana Beck, who in 1939 took an apprenticeship with Sir Hugh Cairns in Oxford, United Kingdom, and whose first appointment as consultant was delayed by the war until she could take a post as consultant neurosurgeon at the Middlesex Hospital in London in 1947;<sup>13</sup> and Sofia Ionescu from Romania who graduated as a neurosurgeon in 1954.<sup>14</sup> In another equally recent paper by authors from “a global working group of women involved in neurosurgery in different countries,”<sup>11</sup> Judith was briefly mentioned as follows:

Judith Lepeintre fled Romania after World War II. Though she was formally trained as a general surgeon in her home country, in the 1960's she quickly began surgical treatment of children with traumatic brain injury at the Necker Hospital in Paris.

Unfortunately, her family name was spelled incorrectly; her country of origin was Hungary, not Romania; she left her country in 1936, not after WWII; she did not train as a general surgeon in her home country; she started pediatric neurosurgery at the Necker Hospital in 1947, not in 1960; and she cared for all pediatric neurosurgery, not just traumatic brain injury. Also, there was no mention of her work as a neurosurgeon with the French Army during the war, nor was there any reference to her doctoral thesis.

The historical amnesia concerning Judith Lepintre in the historical neurosurgical literature, including in contemporary French scholarly literature, was also apparent in a paper from 2018 about the neurosurgical management of trauma in the French Armed Forces during deployment<sup>15</sup> and in a French master's thesis presented at the faculty of medicine of Marseille in October 2020 and dealing with cranial surgeries at war and the state of the training of French military surgeons.<sup>16</sup> None of these publications carried any mention of Judith Lepintre and her contributions during WWII. The master's thesis featured a chapter about the history of French military neurosurgery in which one could read that “it was not until the First Gulf War (1990–1991) that a French military neurosurgeon was deployed for the first time” (page 4 of the thesis).

## Conclusions

Judith Lepintre, née Balkányi, had an exceptional career: she was a Jewish Hungarian who graduated with honors as a medical doctor and left her country shortly before the start of WWII. She trained in neurosurgery in Paris, the first woman in France to do so, under Clovis Vincent, the father of French neurosurgery. She escaped the Gestapo when the Nazis occupied Paris, and she joined the Free French Army in Algeria and participated as the first woman field neurosurgeon in WWII's campaigns of Italy, France, and Germany until the end of the war. She managed to defend a doctoral thesis summarizing her war neurosurgery experience, then went on to develop pediatric neurosurgery in the largest hospital for sick children in France. Despite her great clinical skills and academic

achievements, she was never promoted to head of the department or professor because of local French regulations. Apart from a short obituary published in 1982, Judith Balkányi-Lepintre and her pioneering neurosurgical contributions had been all but forgotten.

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## Disclosures

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

## Author Contributions

Conception and design: M Hariz, GM Hariz, Agid. Acquisition of data: M Hariz, L Eröss, B Eröss, Cif, Agid. Analysis and interpretation of data: M Hariz, L Eröss, GM Hariz, Cif, Blomstedt, Agid. Drafting the article: M Hariz. Critically revising the article: all authors. Reviewed submitted version of manuscript: all authors. Approved the final version of the manuscript on behalf of all authors: M Hariz. Administrative/technical/material support: GM Hariz, B Eröss, Cif. Study supervision: M Hariz.

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