Symposium on Wilson’s disease
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Kinnier Wilson and Wilson’s disease

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Disclosure of interest : Nothing to disclose
French Network on Wilson’s disease
History of Neurology

Samuel Alexander Kinnier Wilson. Wilson’s disease, Queen Square and neurology

Samuel Alexander Kinnier Wilson. La maladie de Wilson, Queen Square et la neurologie

E. Broussolle, J.-M. Troölo, F. Woimant, A. Lachaux, N. Quinn
1- Kinnier Wilson the neurologist
2- Wilson’s disease
Born in the USA in 1878, went then to Scotland
Qualified in Medicine in Edinburgh
Was inspired to study neurology by Sir Byron Bramwell
Spent one year in Paris in 1903 where he worked under Pierre Marie (1853-1940) at Bicêtre Hospital, and met other neurologists (Babinski, Crouzon, Lhermitte, Souques, Foix, Meige) and published in French medical journals
Samuel Alexander Kinnier Wilson, the neurologist

Pierre Marie (1853-1940)

Louis Edouard Octave Crouzon (1874-1938) (craniosynostosis)

Georges Guillain (1876-1961)
Wilson had thereafter uninterrupted links with French neurology, particularly with Georges Guillain (1876-1961) who had a remarquable academic career in Paris at the same time as Wilson did in London.

In 1904, Wilson went to Germany and visited in Leipzig the reknown anatomist Paul Flechsig (1847-1929); he thus could learn from German and Central Europe neurological schools.
Samuel Alexander Kinnier Wilson, the neurologist

- In 1904, Wilson returned to London with a warm letter of recommendation from Pierre Marie.
- He was appointed at the National Hospital, Queen Square, also later at King’s College Hospital.
- Became the first pure neurologist in the UK, and one of the most brilliant and renowned specialists in neurology in the world.
Samuel Alexander Kinnier Wilson, the neurologist

John Huglings Jackson (1835–1911)

Robert Foster Kennedy (1884-1952)

Gordon Morgan Holmes (1876–1965)
Samuel Alexander Kinnier Wilson, the neurologist

- Wilson had an **encyclopedic knowledge**, was fluent in French and in German, and thus covered all the neurological literature in English and in the two other languages.
- He **published extensively**, did his medical thesis on progressive lenticular degeneration, founded in 1920 the *Journal of Neurology and Psychopathology* (today JNNP).
- Wilson **did important contributions** to the study of disorders of mobiliy and motor tone, epilepsies, aphasia, apraxia, tics and other movement disorders, pathological laughing and crying, ...
- He prepared a **2-volume textbook, Neurology**, published 3 years after his death in 1937 by Dr. A.N. Bruce in 1940.
NEUROLOGY

BY

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Samuel Alexander Kinnier Wilson, the neurologist

Early special interest in movement disorders

HENRY MEIGE ET E. FEINDEL

LES TICS

ET

LEUR TRAITEMENT

PRÉFACE DE M. LE P. BRISSAUD

PARIS
MASSON ET Cie, ÉDITEURS
LIBRAIRES DE L'ACADÉMIE DE MÉDECINE
126, BOULEVARD SAINT-GERMAIN
1902
Tous droits réservés.

TICS AND THEIR TREATMENT

BY HENRY MEIGE AND E. FEINDEL

TRANSLATED and EDITED, with a CRITICAL APPENDIX
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LONDON
SIDNEY APPLETON
1907
2012 – centenary of the first publication on Wilson’s disease

Wilson’s disease

215 pages, the longest paper ever published in Brain
Wilson’s disease

Main features of the 12 patients in the 1912 Brain article (including 4 cases W1-W4 followed by Wilson)

Age at onset: 10-25 yrs; survival: 5.5 mths-7 yrs; familial cases

<table>
<thead>
<tr>
<th>Case</th>
<th>Name/Sex</th>
<th>Age at onset (years)</th>
<th>Survival (mo or yrs)</th>
<th>Brain pathology</th>
<th>Liver pathology</th>
<th>Consultant &amp; years of onset &amp; death</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Sydney Moor^{-}/M</td>
<td>10</td>
<td>5.5 mo</td>
<td>“normal”</td>
<td>cirrhosis</td>
<td>W. Gowers 1886-88</td>
</tr>
<tr>
<td>H2</td>
<td>Charlotte Moor^{d}/F</td>
<td>15</td>
<td>14 mo</td>
<td>“normal”</td>
<td>cirrhosis</td>
<td>W. Gowers 1887-8</td>
</tr>
<tr>
<td>W5</td>
<td>Samuel Moor^{d}/M</td>
<td>10</td>
<td>4.5 yrs</td>
<td>no p/m</td>
<td>no p/m</td>
<td>W. Gowers 1874-9</td>
</tr>
<tr>
<td>H3</td>
<td>Walter William S/M</td>
<td>10</td>
<td>7-8 mo</td>
<td>lentiform</td>
<td>cirrhosis</td>
<td>J.A. Ormerod 1889-90</td>
</tr>
<tr>
<td>H4</td>
<td>Alfred K^{-}/M</td>
<td>20</td>
<td>3 ½ yrs</td>
<td>lentiform</td>
<td>cirrhosis</td>
<td>E.A. Homén 1886-90</td>
</tr>
<tr>
<td>H5</td>
<td>Wilhelm K^{-}/M</td>
<td>12</td>
<td>7 yrs</td>
<td>lentiform</td>
<td>cirrhosis</td>
<td>E.A. Homén 1882-9</td>
</tr>
<tr>
<td>H6</td>
<td>Anna K^{-}/F</td>
<td>20</td>
<td>6 yrs</td>
<td>lentiform</td>
<td>cirrhosis</td>
<td>E.A. Homén 1882-9</td>
</tr>
<tr>
<td>W1</td>
<td>Sylvia Tylor/F</td>
<td>25</td>
<td>4 yrs &amp; 2 mo</td>
<td>lentiform</td>
<td>cirrhosis</td>
<td>D. Ferrier 1904-8</td>
</tr>
<tr>
<td>W2</td>
<td>DF^{-}/F</td>
<td>17</td>
<td>2 yrs &amp; 8 mo</td>
<td>lentiform</td>
<td>cirrhosis</td>
<td>D. Ferrier 1904-7</td>
</tr>
<tr>
<td>W3</td>
<td>EP^{-}/M</td>
<td>19</td>
<td>3 yrs</td>
<td>lentiform</td>
<td>cirrhosis</td>
<td>D. Ferrier 1907-10</td>
</tr>
<tr>
<td>W4</td>
<td>Charlotte Tolputt^{-}/F</td>
<td>18</td>
<td>still living; 22 mo</td>
<td>still living</td>
<td>still living</td>
<td>H. Tooth 1910-</td>
</tr>
<tr>
<td>W6</td>
<td>Christopher Johnson^{-}/M</td>
<td>11</td>
<td>2 yrs</td>
<td>no p/m</td>
<td>no p/m ascites &amp; oedema</td>
<td>J.A. Ormerod 1887-9</td>
</tr>
</tbody>
</table>

mo: months; yrs: years; no/p/m: no post-mortem examination; lentiform: lentiform nuclei lesions; H4: Homén’s case 2; H5: his case 3; H6: his case 1.

a Still living in 1911 with 18 months of follow-up; transient jaundice aged 21.
b Psychic troubles onset when aged 17.
c Jaundice troubles when aged 13.
d Sibs.
e Sibs.
f Sibs.

cited: Broussolle et al., Rev Neurol (Paris) 2013; 169: 927-935
### Wilson’s disease

#### Clinical presentation

- Abnormal movements: Tremor
- Muscular rigidity
- Contractures/spasms
- Facial involvement/Dysarthria/dysphagia
- Muscular weakness, but no true paralysis nor pyramidal signs
- Emotionalism
- Mental disability, psychosis
- Jaundice
- Progressive emaciation, fatal issue
Wilson’s disease

Clinical presentation (Gowers patient, 1887)

=> contractures, spasms, ... dystonia appears today as the main feature but this term was not available at that time
Wilson’s disease

Clinical presentation (Wilson’s patient W1)
Wilson’s disease

Wilson’s patients W2, W3 & W4

severe orofacial dystonia with large mouth opening
Wilson’s disease

Brain and liver pathology
(9 autopsied cases)

• Lentiform lesions in seven cases (two had only macroscopic examination)

• Liver cirrhosis in all 9

• Illustration with patient W1
Previous reports related to the illness

- **1888 & 1898**: Westphal C then Strümpell A: Pseudosclerosis, but no clear lenticular lesion; 1/5 had liver disease

- **1911**: Völsch M: Pseudosclerosis with cirrhosis and no macroscopic lesion of the lenticular nuclei (acknowledged by Wilson)

- **1902 & 1903**: Kayser B then Fleischer B: pericorneal ring
Wilson’s disease

Subsequent reports and delineation of the toxic role of copper

- **1913**: Rumpel A: Excess copper in the liver (forgotten finding)
- **1934**: Gerlach W & Rohrschneider W: Excess copper in corneal ring
- **1948**: Excess copper in brain and liver (*Cumings JN*) and in the urine (*Mandelbrote BM*)
Wilson’s disease

Wilson contributed to determine the role of the basal ganglia in motion and introduced the concept of extrapyramidal system.

No definite idea of the role of the basal ganglia at the turn of the 19th and 20th centuries.
Cécile Vogt, 1911: role of the corpus striatum (basal ganglia) in motility

- Cécile Vogt: “état criblé” and double athetosis
  In:

Cécile Vogt-Mugnier (1875-1962) & Oskar Vogt (1870-1959), Berlin
Wilson, in his 1912 Brain article, emphasizes the role of the basal ganglia in motor function.

**Concept of extrapyramidal syndrome**

- Wilson’s patients have severe contracture and muscle weakness but no real paralysis, no Babinski sign, and no lesions of the cortico-spinal tract.
- He suggests the role of the basal ganglia in motility and proposes the terms extrapyramidal system to depict the basal ganglia role and extrapyramidal signs to describe the motor signs associated with damage to this system.
- Wilson will later speak about the «old» and the «new» motor system and further explore the syndrome of the corpus striatum in his famous 1925 Croonian lectures.
Kinnier Wilson and Wilson’s disease

**Conclusion:**

- Kinnier Wilson was one of the most renowned neurologists of the first half of the 20th century.
- He did a great contribution to many aspects of neurology.
- Wilson identified a disease in 1912 which shares his name and contributed to the delineation of the role of the basal ganglia in motor function.

Thank you for your attention.