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Original Article

Joaquin Maria Albarran Y Dominguez: Microbiologist, histologist, and urologist–a lifetime from orphan in Cuba to Nobel nominee

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Abstract Joaquin Albarran was an extraordinary late 19th century urologist. His early career was in the field of microbiology and histopathology in Paris at a time of great medical developments and innovations. His later contributions to urology included the Albarran lever, Albarrans sign, Albarran–Ormond syndrome and seminal works on testicular and renal tumors. He also wrote treatizes on the pathophysiology of acute urinary retention, nephritis and calculus ureteric obstruction. He died at the young age of 52 from the effects of tuberculosis and in this same year was nominated for the Nobel prize in medicine.

Key words Albarran, Cuba, lever, nephrostomy, Paris, perineal prostatectomy, ureteric catheter.

Introduction

Joaquin Maria Albarran Y Dominguez (Fig. 1) was born in the small village of Sagua-Grande, Cuba on the 9 May 1860 when the island still belonged to Spain. He spent his formative years studying under the Jesuits in Havana until 9 years of age when he was orphaned, along with four other children. He was adopted by a local Spanish surgeon (Dr Fabregas) and continued his education in Barcelona, where he proved to be an exceptional student and went on to become a medical licentiate in 1877 at only 17 years of age. He then moved to Madrid to follow the courses required to obtain the degree of Doctor of Medicine for which he was awarded the Extraordinary Prize for his thesis dealing with tuberculosis and its contagious aspects. He continued his medical education in Paris, which, at the time, was the center of development and research. Here he began work in the Laboratorie d'Histologie with Professor Brissaud where he wrote his first thesis on testicular tumors. He furthered his early career in histology when he began practicing with Louis Antoine Ranvier. It was Ranvier and Louis Pasteur who persuaded him to stay in France and together, Pastuer and Albarran most notably coined the name *Bacillus pyogenes*, later to be re-named *Bacterium coli*.[1]

He subsequently interned under Ulysse Trálat, Jacques-Joseph Grancher, Jean François Auguste Le Dentu and Jean-Casimir-Félix Guyon of which the latter exercised great influence on the young Albarran. In 1884, he became 'Interne des Hôpitaux' and in 1888 and 1889 received the Medal for Surgery, Faculty Prize and his Doctorate, respectively. Between 1885 and 1893, Albarran had the privilege of rotating through the most famous and renowned of Parisian hospitals–Charite, Cochin, Enfants Malades, Dieu Hotel, Necker and Salpetiere.[2,3] In 1890, he was appointed Chef de Clinique for diseases of the urological tract, Professeur Agrégé in 1892 and in 1894, Chirurgien des Hôpitaux. His clinics became renowned the world over and attracted an international student-base. Finally in 1906 he succeeded Guyon as Director of the Department of Urology in Hôpital Necker at the prodigious age of 34. Guyón declared that 'he is indeed a great surgeon, a great brain and a great heart . . . all his qualities have reached the same peak: the superlative degree.'

He produced some of the very great treatizes of the time including 'Médicine opératoire des voies urinaires' (Paris 1909),[4] which was his masterpiece. His works also included volumes on kidney adenomas, epitheliomas (1897) and tumors (written with Armand Imbert),[5] microbial nephritis,[6] and nephritis of the cancerous kidney (1900).[7]

Albarran was the first surgeon in France reported to carry out perineal prostatectomy for prostate carcinoma.[4] He made ureteral catheterization more common in clinical practise following his simplification of the technique using an 'onglet' (Nail of Albarrran) from the instrumentarium of two German urologists, Leopold Casper and Max Nitze, allowing the separate catheterization of ureters via the cystoscope. Additionally, he most notably modified a device, which had originally been designed by the younger and lesser known Armand Imbert, for refining the movements of the cystoscope during catheterization of the ureteric orifices which is still used today (Albarrans lever, Fig. 2). In the clinical setting he is credited with the first planned nephrostomy[8] and observed that in calculus anuria, nephrostomy drainage was of prime importance before definitive treatment of the calculus.

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Fig. 1 Joaquin Albarran and signature. Kind permission from Dr JYG alias Medarus@tele2.Fr (http://www.medarus.org).

Fig. 2 Cystoscope showing Albarran lever that allows deflection of ureteric catheters to assist ureteral orifice cannulation.

Fig. 3 Joaquin Albarran, 1907. Copper coin. Designed by French sculptor Jean Victor Segoffin (1867–1925) and signed by the Sculptor behind the bust. Grateful permission for use of this image from Christopher Eimer. Fine Medals and Medallic art, London.

His interests also included renal physiology and led him to devise a clinical polyuria test for renal insufficiency – the Albarrans test. Albarrans test consists of evaluation the degree of loss of renal function by measuring urinary volume and concentration.[9]

With his background in bacteriology and histopathology, he also developed a new system of bladder tumor classification and described the anatomical and physiological features of urinary retention with Jean-Casimir-Felix Guyon.[10] His name is also eponymous with his description of the minute submucosal glands in the subcervical region of the prostate gland that empty for the most part, into the posterior part of the urethra (Albarran's glands) and his joint description of inflammatory retroperitoneal fibrosis of unknown etiology resulting in ureteric obstruction (Albarran–Ormond syndrome).[11]

In addition, he was the first in 1903 to diagnose transitional cell carcinoma of the renal pelvis by detecting malignant cells in urine aspirated from the renal pelvis. He further refined this approach by noting ureteral hemorrhage in the presence of a renal pelvic cancer when fluid injected in the renal pelvis distended it and caused it to bleed (Albarran's sign).

His clinical experience also led him to show that with blunt trauma, the kidney ruptured radially from the hilum and based on this, he fashioned a catgut mesh to be threaded under the renal capsule in cases of rupture.

He obtained on three occasions the Godard prize from the French Medical Academy and was also awarded the Tremblay Prize. He presided over the first International Congress of Urology in 1908. The Pavilion of Urology of

the Cochin Hospital in Paris takes the name of Joaquin Albarran as does the surgical hospital of Havana. His relief was also commemorated on a commissioned French coin casting. (Fig. 3).

An exceptional urologist, histologist and bacteriologist Joaquin Albarran died in Paris on 17 January 1912 at the young age of 52 from the devastating effects of tuberculosis. Ironically, he was inadvertently cut and infected by a scalpel that he was using to dissect a kidney he had removed for renal tuberculosis.[12] He is buried in the cemetery of Neuilly Sur-Seine.[13] At his funeral his colleague Professor Dupré said of Albarran 'he was affectionate and charitable with his patients; faithful to his disciples; enthusiastic with the right causes, Albarran practiced without reserve and with a magnanimous and fervent spontaneity, all the forms of solidarity and altruism.' In the year of his death he was nominated for the Nobel prize in Medicine.

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