

Sir Charles Ballance: A pioneer surgeon in Malta

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Abstract

Charles Ballance was arguably the most eminent surgeon stationed in Malta during the Great War. On the 16th February 1918 he removed a bullet from the heart of trooper Robert Martin who was shot in the chest in Salonika three months previously. Sadly the patient died of sepsis one month later, a fact that obscured the importance of this landmark operation, the third of its kind worldwide. This paper sets the background to this achievement and celebrates the impact that this surgical pioneer left on our shores.

Key words

Ballance, heart surgery, 1918

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The scene in Malta, WWI

In its role as Nurse of the Mediterranean during the Great War, Malta received 57,991 sick and wounded from the Mediterranean Expeditionary Force and 78,130 from the Salonika Expeditionary Force.¹ One hundred and sixty five medical officers, 82 women doctors, and over 400 nurses treated these patients in 27 hospitals converted for the purpose.² Among the eminent senior consultants stationed here in 1915 were Colonel Charles Ballance, surgeon to St Thomas' Hospital, who performed the second successful splenectomy in 1895,³ Colonel Charters Symonds, surgeon to Guy's Hospital, amongst the first in England to remove the appendix for acute inflammation in 1883,^{4,5} Colonel Archibald Edward Garrod, physician to St Bartholomew's Hospital, author of *Inborn Errors of Metabolism*,⁶ and Colonel Purves Stewart, physician to Westminster Hospital and a distinguished nerve specialist.⁷ The motto of the presiding British Army Medical Administrator Sir Alfred Keogh, K.C.B. was "We wish to bring to the humblest soldier the best available surgery, and that which is not the best is not good enough". All serious cases were brought to the attention of these learned men, who worked as a team, performed regular ward rounds and decided on all major surgical interventions.⁸

Charles Ballance

Charles Ballance was born in 1856. He studied medicine at St Thomas's Hospital where he served as house surgeon and anatomy demonstrator. He won gold medals in the final examination in 1881 and in the Master of Surgery degree the following year. In 1888 he was appointed aural surgeon and became a pioneer in mastoid surgery, developing the specialty along scientific lines, introducing the Hunterian experimental method. Among his research areas of interest were arterial wall changes after ligation,⁹⁻¹⁰ the repair of peripheral nerves,¹¹⁻¹² and the parasitic theory of cancer.¹³⁻¹⁴ He progressed at St Thomas' to assistant surgeon in 1891, surgeon in 1900 and consulting surgeon in 1919. Charles Ballance was amongst the first to perform splenectomy for trauma, publishing his early experience.¹⁵ Fixed dullness elicited in the left flank is known as Ballance's sign.¹⁶ In 1908 he was also elected consulting surgeon to the National Hospital for the Paralysed and Epileptic in Queen Square. In 1915, on the outbreak of war, he was posted to Malta, where, together with his surgical colleague Charters Symonds, he organised and supervised numerous emergency hospitals, for which he was honored MD from the University of Malta and knighted, Order of St John of Jerusalem.¹⁷

The operation

On 16th February 1918 Charles Ballance cut into the right ventricle and retrieved a bullet with an artery forceps from the inferior interventricular septum adjacent to the apex of the heart. Significant haemorrhage was stemmed with internal sutures and a blood transfusion was also administered at the time, and stopped when the donor became hypotensive.¹⁸ Dr Sarah Marguerite White assisted Ballance and Lt Col Shirley administered the anaesthetic. The 21-year old patient, Robert Hugh Martin, a Derbyshire Yeomanry trooper, was shot in the chest in Salonika on 14th November 1917. He underwent exploratory surgery two days later at the 40th Casualty Clearing Station Hospital and was then transferred to Malta, where he arrived on 13th January 1918 at St Elmo Hospital, under the care of Ballance. X-rays confirmed the presence of a bullet lodged in the heart and the necessary preparations were made for its surgical removal almost 5 weeks later. Although the operation was a technical success Martin died of sepsis on the 14th March. Ballance observed "it is a common experience that bullets frequently lodge in the tissue and induce neither local nor general infection until attempts at removal are made". Sepsis was encountered at surgery, which was performed 3 months after the injury.¹⁹

The importance of this landmark operation is not widely appreciated. Indeed Ballance's great grandson Peter, a recently retired consultant anaesthetist, when

interviewed, remarked that "he was known more as a neurosurgeon and ear, nose and throat specialist, rather than for his cardiac surgery, but he was renowned as quite experimental and innovative".²⁰

A surgical landmark

In 1883 Theodore Billroth issued a warning when he declared "any surgeon who operates on the heart should lose the respect of his colleagues".²¹ In 1896, Stephen Paget expressed similar pessimism in his textbook, *The Surgery of the Chest*, when he commented "surgery of the heart has probably reached the limits set by nature".²² That same year Cappelen sutured a cardiac wound but the patient died from a damaged left anterior descending artery.²³ A second failed attempt by Farina²⁴ was followed success in the hands of Ludwig Rehn on the 9th September 1896.²⁵ By 1907 Rehn reported 124 cases of cardiac suture with a 40% survival,²⁶ and in 1909 Peck²⁷ and Vaughan²⁸ published further series with comparable results.

The progression from simple suture of penetrating injuries to the removal of foreign bodies embedded within the heart took surgery to a new dimension. George Grey Turner was the first to attempt removal of a bullet from the left ventricle in 1917. When the surgeon lifted the heart, it went into asystole and was resuscitated. The bullet was left in-situ and the patient went on to live a normal life.²⁹ That same year Henri Hartmann successfully extracted a bullet from the right ventricle of a French soldier, almost three years after the injury.³⁰ The following year Sir Berkeley, later Lord Moynihan of Leeds, who incidentally was born in Malta on 2nd October 1865, had similar success when he removed a foreign body embedded in the wall of the left ventricle adjacent to the atrioventricular groove, fourteen months after the injury.³¹ Ballance's case also took place in 1918 but is not given historical prominence because the patient succumbed one month post-operatively. Perhaps the shorter interval between injury and operation may have contributed to the fatal sepsis.

Recognition

The following year Ballance delivered the Bradshaw lecture entitled "The surgery of the heart" in which he discussed other authors' series including those of Borchardt,³² Rehn, Vaughan, Peck and Pool,³³ and estimated that over 400 operations on the heart had been performed since Farina's case. On two occasions Ballance referred to his own case and he celebrated the survival of 44 patients of 58 War cases of which he possessed the case records. He discussed the technical aspects of removing a foreign body from a heart chamber and also described his experience when he successfully dealt with a ruptured innominate aneurysm. In Ballance's words "the surgeon having this job in hand will take it all in a day's work".³⁴ Clearly here was a man

of stature, a surgeon at the cutting edge of an exciting new field. In being nominated as a Bradshaw lecturer Ballance was included in a long line of illustrious doctors including such names as Sir James Paget, Sir Thomas Spencer Wells, Sir William Watson Cheyne, Sir Berkeley Moynihan and Sir Henry Souttar. Sir Russel Brock who delivered the lecture in 1957 entitled “The Present Position of Cardiac Surgery” praised Ballance’s message of 1919 for “the change from fear of the heart to the realization that it could be operated on in the same way as other organs”. Brock went on to say “in reading Ballance’s lecture one is impressed that it contains little different from what would have been written in 1947”, a strong commendation if ever there was one.³⁵

Ballance was anatomy examiner for the Royal College of Surgeons 1887-1891, and a member of the Court of Examiners 1900-1919. He was President of the Medical Society of London in 1906 and the first President of the Society of British Neurological Surgeons in 1927. He gave other prestigious lectures including the Erasmus Wilson lecture in 1888 “The pathology of haemorrhage after ligation in continuity”, the Vicary lecture in 1921 “A glimpse of the surgery of the brain”,³⁶ the Macewen memorial lecture in 1930 “The dawn and epic of Neurology and Surgery”,³⁷ and finally the Lister memorial lecture in 1933 “On nerve surgery”.³⁸

Conclusion

The Great War brought about momentous advances in surgery, during which time Malta hosted many eminent doctors, foremost among whom was Sir Charles Ballance. His landmark operation of the removal of a bullet from the heart was probably the third such attempt worldwide and has, thus far, failed to attract its well-deserved credit. Ballance’s many other achievements in the areas of aural surgery, neurosurgery and scientific research put his cardiac surgical feat into perspective. This was not a singular adventure but yet another mark of a great man that Malta was fortunate to receive.

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Corinthia Group Prize in Paediatrics, 2014



The Corinthia Group Prize in Paediatrics for 2014 was awarded to Dr Lauren Abela, who obtained the highest aggregate mark over the combined examinations in Paediatrics in the fourth and final year of the undergraduate course. Whilst offering our congratulations to Dr Abela, we would also like to congratulate all those who performed admirably during the undergraduate course in Paediatrics, some of whom were only marginally ‘pipped to the post’ by Dr Abela. In the accompanying photograph, Dr Abela is seen receiving a cheque for €233 from Professor Simon Attard Montalto, Head of Paediatrics, in the Medical School Museum. Finally, the Academic Department of Paediatrics and Medical School remain indebted and are extremely grateful to the Corinthia Group for their ongoing support.

Professor Simon Attard Montalto