

HISTORICAL ARTICLE

Twentieth Century Orthopaedics: its Development as a Specialty in Aberdeen

R Tate, Department of Orthopaedics, Woodend Hospital, Aberdeen

Correspondence to

Mrs R Tate, 22 Hazelmere Avenue, Newcastle upon Tyne, NE3 5QL
Email: rfolley@doctors.org.uk

Acknowledgement

I would like to thank Mr Alexander Adam, retired Aberdeen consultant orthopaedic surgeon and honorary librarian Aberdeen Medico-Chirurgical Society.

Introduction

Orthopaedics has a diverse and interesting history. Its nature has changed greatly through the years as it has progressed to be the prominent surgical specialty we know today.

The practice of most orthopaedists prior to 1900 consisted mainly of treating deformities by mechanical means. The main deformities were congenital, such as clubbed feet, but this later extended to developmental anomalies and disabilities/deformities due to age, infections or injuries. Treatment was characterised by an array of metal appliances, splints and bandages.¹

Cooter has described the changing nature of orthopaedics in the early years of the specialty. In 1891 'orthopaedics' was defined as that 'department of general surgery which includes the prevention, the mechanical treatment, and the operative treatment of chronic deformities.'² It was from the 20th century onwards, and with some difficulty, that orthopaedics began to be recognised as an individual specialty.

Specialisation

In early days, the orthopaedic surgeon was mainly a 'mechanician'. The main surgical procedures to be undertaken were rather basic subcutaneous tenotomies.³ Many wanted to develop new techniques for correcting deformities.

General surgeons at that time did not recognise a need for orthopaedics to develop as an independent specialty; in fact many were strongly opposed to the idea. In 1881 at an International Medical Congress held in London, an application for a separate section on orthopaedics was rejected on the grounds that 'there were not, in England, enough orthopaedic surgeons of good repute to officer the section.'⁴ It is of interest to note that in 1913, not only was the same application accepted, but it was complemented by the formation of an orthopaedic subsection at the Royal Society of Medicine.²

The First World War played an important part in the development and recognition of orthopaedic surgery. Many of the more important contributors to the development process were military surgeons and much of their wartime work was orthopaedic in nature. It was during and after the war that the need for orthopaedic surgery to develop as a separate specialty began to be widely acknowledged.

Sir Robert Jones (1857-1933) was the founder of modern orthopaedic surgery.⁵ He defined orthopaedics as 'the treatment of manipulation, operation, re-education and rehabilitation of the injuries and diseases of the locomotor system.'⁶ Jones was

one of the central participants involved in changing the nature of orthopaedics towards the specialty we know today. In 1926 he wrote:

It is now generally recognised that no single brain is sufficiently capacious to deal safely with every department of general surgery, and that in future surgeons will divide into groups, each endeavouring to advance and perfect the section to which he is attracted. It is only in this way that satisfactory progress can be achieved, for our energies will then be concentrated upon problems within our compass.⁷

He clearly recognised the rapidly expanding nature of surgery and hence the need for future specialisation within the surgical field. He was responsible for the establishment of orthopaedic departments in British teaching hospitals, and played a major role in the formation of the British Orthopaedic Association.

Muirhead Little (1854-1935) was one of the first Presidents of the British Orthopaedic Association. His first address in 1918 was on 'Specialisation and general surgery'. He quoted a journal in which it was said that all specialism was dying. He continued: 'Gentlemen, I venture to express the opinion that it is not specialism, and not the specialist, that is in articulo mortis, but the general surgeon, the all round man with no special line of his own.'⁸

He acknowledged Robert Jones' achievements in the military hospitals during the First World War saying: 'the ground gained for orthopaedics in wartime will not, I trust, be lost in peacetime. In the interest of the public it is desirable that many injuries which formerly were treated by the general surgeon should henceforth be treated by the specialist...'⁸ It took a long time for this message to be heeded by those whose authority and influence continued to hold back the progress of orthopaedic surgery. There was a likely loss of remuneration if referring cases over to other specialists.

Those with an interest noticed that general surgeons often failed in their treatment of deformities and other "orthopaedic" cases. Muirhead Little attributed this 'not to lack of intelligence or operative skill, but lack of attention to detail and want of that necessary experience.'⁴ He implied that general surgeons were not experienced enough in all areas, indicating a need for specialisation within surgery.

Orthopaedics in Aberdeen

Orthopaedic surgery was one of the few specialties to be established in Aberdeen before the Second World War and the introduction of the National Health Service. The only other

specialties to be established in Aberdeen before the Second World War (and before orthopaedics) were otolaryngology (ENT) and ophthalmology.⁹



Aerial view of Aberdeen Royal Infirmary site

In 1934 the Medical Services Committee of the Board of Management of Aberdeen Royal Infirmary decided that a separate department for the treatment of orthopaedic cases should be established. Initially, this would consist of up to six beds, on the understanding that the beds would be used for general surgery when not in use by orthopaedic patients.¹⁰ Similar progress was made in Edinburgh around this time, with the opening of the Princess Margaret Rose Orthopaedic Hospital. This was opened as a centre “for the treatment of crippled children” in 1932; and its use extended to adult and other orthopaedic cases in 1937.¹¹

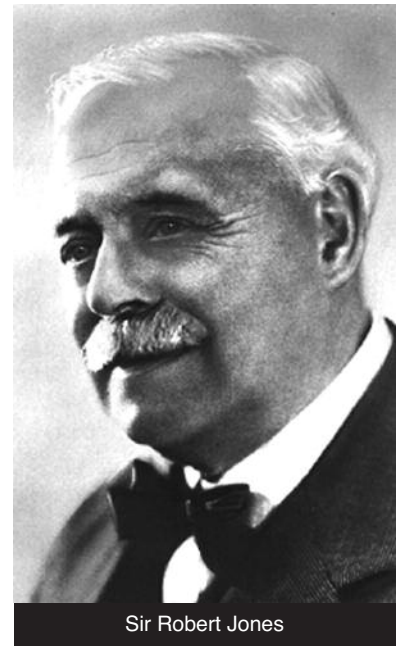
The orthopaedic department in Aberdeen was instituted to meet the needs of increasing numbers of orthopaedic cases coming to the Infirmary. The main function of the department was to provide treatment for those cases with the prospect of a cure, or at least considerable relief.¹⁰ The department was soon very busy, prompting the decision to establish a larger orthopaedic department in the new Infirmary being built at Foresterhill. There were important practical considerations for this new department: it should be in close proximity to the X-ray department, a plaster room should be provided near to the X-ray department, and one of the operating theatres should be specially equipped for orthopaedic work.¹⁰

Mr Alexander Mitchell was appointed surgeon-in-charge of the new orthopaedic unit in 1935. This allocation was made on the basis that he would continue to undertake his general surgical work in the Infirmary in addition to the work of the new department.¹⁰

Mitchell, born in 1881, was known to be quite a character, the eldest son of a medical family. He developed a wide range of early experience and gradually established his career in surgery. During the First World War he came under the influence of Sir Robert Jones in the Army Medical Corps and his career began to lean towards orthopaedic surgery.¹² His interest in orthopaedics may also have stemmed from the fact that he himself was crippled as a result of septic arthritis of the hip as a child. Despite this disability, he was renowned for being a very hardy man, and was well known for riding his horse to work regardless of the weather conditions.¹² He believed strongly in the totality of the surgeon’s care for his patient, and that the surgeon must not be, as so many of his physician colleagues regarded him, simply a technician.¹² After 27 years of consultant

service (11 in the orthopaedic department) Mr Mitchell retired in 1946.^{10,13}

Upon the retirement of Mitchell, Mr Alexander M. Rennie was appointed surgeon-in-charge of the orthopaedic department. Rennie (later to become Professor) developed his orthopaedic skills in Birmingham under Mr Naughton Dunn (a pupil of Robert Jones), and then returned to Aberdeen as assistant surgeon under the guidance of Mitchell. He spent four years during the Second World War as a military surgeon in the Middle East specialising in orthopaedics.¹⁴



Sir Robert Jones

Expansion

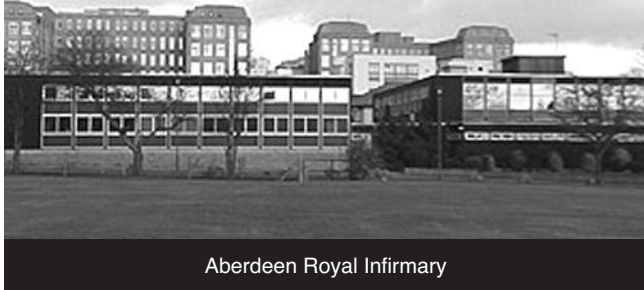
In 1936 patients were transferred to the new Infirmary. The expanded orthopaedic department was soon fully occupied and Mr Mitchell withdrew from his general surgical commitments. Two assistant orthopaedic surgeons were appointed in 1947, Neil Hendry and George Hay.¹⁰

Further considerable expansion took place after the introduction of the National Health Service in 1948.⁹ A significant amount was in the form of out-patient clinics, a number of which were established throughout the area. These peripheral clinics were run by orthopaedic surgeons from Aberdeen who travelled out regularly. The clinics were very busy, with a large number of patients with minor complaints, as everything was now free under the NHS.¹⁵

At the time of Mitchell’s appointment to the orthopaedic department the division between orthopaedics and general surgery was not clearly delineated. Trauma was mainly treated in general surgical wards with only the residual deformities and fracture non-unions being referred to the orthopaedic department. Alexander Rennie wrote:

It required some amount of patience on the part of Mitchell to await the gradual development in Aberdeen of the wider concept of orthopaedics. The fact that this took place eventually, more smoothly, and indeed earlier, than in most other teaching hospitals, can be largely attributed to his attitude of scrupulous fairness, and to the respect with which his general surgical colleagues regarded him.¹²

Acute bony injuries were still treated by general surgeons who, in Aberdeen as elsewhere, resisted until 1953 the proposal to transfer this responsibility to the orthopaedic department. The number of beds increased at this time to 65, with further increases in staff.⁹



Aberdeen Royal Infirmary

The Fracture Movement

Before the First World War, trauma and fracture cases were among the routine work of GPs and hospital general surgeons. During the war, fracture treatment became organised within the orthopaedic field. However, in 1918 a special committee of the Royal College of Surgeons stated that it...

... viewed with mistrust and disapprobation the movement in progress to remove the treatment of conditions always properly regarded as the main portion of the general surgeon's work from his hands, and place it in those of "Orthopaedic specialists"; and thus to educate the layman to the belief that the British surgeon is incapable of dealing with the majority of the most serious injuries that the body may sustain.¹⁶

Certain orthopaedic surgeons believed that fractures would be better managed in specialised centres. Sir Harry Platt (1886-1986), a protege of Sir Robert Jones, wrote in 1921 about Ancoats Hospital in Manchester which had begun to establish an organised fracture service. Fractures were treated by orthopaedic surgeons in specialist centres or orthopaedic departments. The development was interrupted by the war, and Platt was trying to emphasise the potential benefits of such a scheme. Some of his views were rather controversial at that time:

...the appropriate surgeon to be entrusted with the control of an ideal fracture service is that specially trained type of surgeon who is justly accorded the title of orthopaedic surgeon. Thus the fracture service of a hospital will naturally find its place as a department of a surgical service which deals with a field which is recognised all the world over as orthopaedic surgery.¹⁷

There are many papers written dating from 1913 onwards regarding fracture management, but it was one particular report which sparked off some conflicting opinions. Published in the British Medical Journal in 1935 it is a 'Report of the Committee on Fractures by the British Medical Association.' The report begins by stating: 'Fractures do not receive the attention which they deserve. By more careful organisation of the treatment of such injuries, the results obtained could be very greatly improved and much time and money could be saved.'¹⁸

The report discusses incapacity periods for certain fractures. Comparisons are made between those treated in organised fracture clinics, often by specialised orthopaedic surgeons, and those treated in non-specialist centres, usually by general surgeons. A significant discrepancy was revealed in the

outcomes of these patients. Those treated in the organised fracture service tended to have much shorter disability periods and fewer patients left permanently incapacitated.¹⁸

The organised fracture service seemed to be effective for a number of reasons. The segregation of cases into one department meant they could all be managed by specially trained and experienced staff. Continuity of treatment and co-ordination of the successive stages of management helped to ensure patients returned to maximum functional activity. The report states:

The patient must not be transferred at a critical stage of treatment from one department to another, from the care of the person responsible for the initial treatment to one who has no knowledge of, or responsibility for, these early measures. The fracture unit staff must be responsible for the treatment of the patient from beginning to end, from the primary reduction to complete restoration of function....¹⁸

Aftercare with active exercises directed to the complete restoration of function and adequate follow-up measures also played a vital role in ensuring better outcomes for the patients. The report states: 'Excellent primary treatment is of little avail in many fractures unless it is followed by a phase of active exercise directed to a complete restoration of function.'¹⁸

These ideas of an organised fracture service slowly began to receive acceptance. At Aberdeen Royal Infirmary the Board began to discuss the advisability of the formation of a fracture clinic in 1935.¹⁰ Discussions continued and the 1937 Annual Report states:

...many of the more serious fracture cases cannot obtain the continuous and prolonged treatment which their condition demands and there is urgent need for the provision of proper facilities for the after treatment of these cases...

Future developments would appear to be in the direction of the department being called upon to play an important part in a national service scheme for the comprehensive treatment of fracture cases.¹⁰

General surgeons resisted the transfer until the 1950s but a system was eventually established whereby all fracture cases would be treated as in-patients in the orthopaedic department and/or as out-patients in fracture clinics held by orthopaedic surgeons in the accident and emergency department. The system appeared to work well, the results of treatment improved and it is now well recognised that fracture treatment is an integral part of the work of orthopaedic surgeons.

Conclusion

Orthopaedics has not always been the prominent specialty it is today. Only after the First World War was orthopaedics recognised as an individual specialty. It is thanks to a small number of dedicated and professional surgeons that it developed, not only in Aberdeen, but across Scotland and the rest of Britain. Although established early, progression and expansion of the specialist orthopaedic department in Aberdeen was slow, and met with some reluctance from the general surgeons of the time. The determination and perseverance has contributed to the important, and expanding, specialised branch of surgery that we recognise today.

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