

G. Buchanan on inguinal hernia treatment: A Review 111-years after

Şeref ETKER

Ankara Nümune Hastanesi

Summary

The Scottish surgeon G. Buchanan (1827-1905) has contributed to the development of pediatric inguinal herniorrhaphy in line with Listerian principles, and is the author of the first separate publi-

cation on the subject to appear as early as 1879. His largely forgotten work is being reassessed.

Key words: Buchanan - Hernia history

"On the 25th of June, 1855, I rose at five a.m., and went on deck. All was life on board. The apathetic Turks who had been lying huddled together, presented the appearance of a huge mass swaying to and fro, as they got up from their recumbent posture to get a glimpse of the great city. The Franks on the quarter-deck were getting up on the companion or the gangways, or any point from which a view could be obtained. All was vivacity, all eagerness to catch the first view of the pinnacles of Constantinople" (İstanbul) (1).

These are the first words in Mr. George Buchanan's diary, written on his landing in Istanbul for his mission as civilian surgeon in the expedition to the seat of the Crimean War. He had just completed his medical training at the Andersonian University in Glasgow, where his father held the chair of Professor in Anatomy; they were renowned for their demonstration of the effectiveness of chloroform as an anesthetic, with the father operating on the son. Buchanan served for a period at the barrack hospitals established in Üsküdar (Scutari), under Miss Nightingale's administration after his first trip to the front, but was afflicted with a "Crimean fever", shortly. Following his recovery he attended the hospitals on the Dardanelles, and returned to Scotland by the end of the year to succeed his father (2).

Prof. Buchanan and Lord Lister and Sir Macewen

The Old Royal Infirmary of Glasgow is honored to be the birthplace of antiseptic surgery in the hands of Joseph Lister (3). George Buchanan was one of his colleagues by then, and readily adopted the techniques developed mainly in the practice of orthopedic surgery there. Interest in the surgical hernia was rekindled with the advent of asepsis, and Lister's personal operation of case of groin hernia (1869). Edoardo Bassini was among the many who paid visits to Lister's clinic before they tried their hands in herniorrhaphy (4), and William Macewen, another pupil of his, conceived the "kelotomy" (5,6) esteemed to be the best operation prior to classical repairs (7).

G. Buchanan's contribution to this development came with the surgical treatment of inguinal hernias in children; he devised and performed a technique for this age group in particular, and presented his results in a separate report (8), one of the earliest to appear in the literature of the subject (Fig.). Buchanan completed his long and productive career as the inaugural Professor of Clinical Surgery at the Western Infirmary of the Glasgow University (9,10), yet his role with respect to a definition of pediatric herniorrhaphy was eventually overshadowed by his manifold academic activities (11).

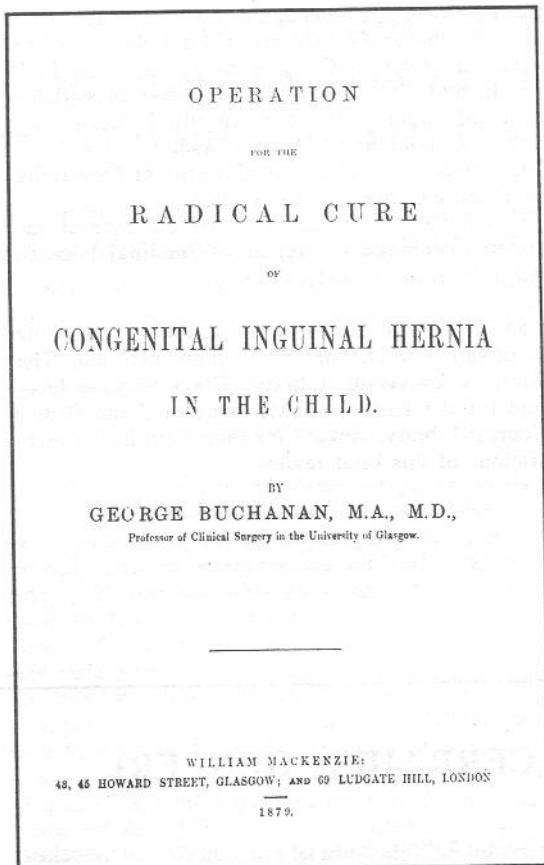


Fig. Title page to G. Buchanan's booklet (1879)

Buchanan's Herniorrhaphy

J. Wood's operation was the model for herniorrhaphies of the day, and Mr. Buchanan had attempted to treat children with this method of placing pins subcutaneously. He was dissatisfied, and took to develop a personal technique with this experience: in dissecting the hernial sac through the external abdominal ring, except for a strip of tissue adherent to the spermatic cord posteriorly, he transected the liberated portion of its circumference, leaving the cord untouched, virtually in situ. Subsequently, the distal part of the sac was folded over the testicle, while the proximal portion was rolled upwards into the internal abdominal ring. This plug or "tampon" developed from the aspects of the sac was, in turn, transfixed with a pair of sutures passing from the lateral side of the inguinal canal to the body of the M.Obl.Abd.int. Finally, the external abdominal ring was approximated with a third stitch.

Buchanan used carbolized silk threads for his repair, and a silver wire for the external ring to start with, but chose chromized catgut after that, only to obtain remarkable results in children (12). He did, however, continue to use trusses before surgery, and immobilized his younger patients for some time postoperatively. A problem met with such baffle operations was a compression of the cord (5,13); yet, conceivably, Buchanan could avoid these complication by excluding all structures lying posteriorly within the canal from his dissection.

A number of points in this technique deserve mention as they relate to the further implementation of pediatric herniorrhaphy:

- (i) the utmost protection of the spermatic cord and adjacent structures (14);
- (ii) section of the sac (herniotomy);
- (iii) an approximation of the M.Obl. Abd.int. to the External Oblique aponeurosis and Poupart's ligament to cover the internal ring, and secure obliteration with the inverted portion of the Processus vaginalis (15);
- (iv) narrowing of the external ring only -as opposed to M. Banks and Czerny's whole length "Miedernaht" (bodice suture);
- (v) use of chromized catgut alone for the complete procedure.

George Buchanan should be remembered as a pioneer in addressing inguinal hernia surgery specifically in children, and his introduction of a refinement in the technique, supplemented with an explicit presentation of his case.

References

1. Buchanan G: *Camp Life as Seen by a Civilian: A Personal Narrative*, Glasgow, James Maclehose, 1871, p. 1
2. "Buchanan, George (1827-1905)" (Pewer, D'A), *The Dictionary of National Biography*, Supp.Vol. 1, London, Oxford University Press, 1939, pp. 244
3. Read RC: "The development of inguinal herniorrhaphy" *Surg.Clin.N.Am.*, 64:185, 1984
4. Zimmerman LM: Heller, R.E., "Edoardo Bassini: His role in the development of the surgical treatment of inguinal hernia", *Surg. Gynecol.Obstet.*, 39: 971, 1937
- 5 Carlson RI: "The historical development of in-

guinal hernia", Surg.Gynecol.Obstet., 39: 1031, 1956

6. Şakar AŞ: Çocuk Cerrahisi ve Ortopedi Kliniği Dersleri (Leçons de Clinique Chirurgicale Infantile et d'Orthopédie), T. 2, İstanbul, 1941, "İstanbul Üniversitesi y. 153", pp. 523(Fig. 377-379)

7. Read RC: "Marcy's priority in the development of inguinal herniorrhaphy", Surgery, 88: 682,1980

8. Buchanan G: Operation for the Radical Cure of Congenital Inguinal Hernia in the Child, Glasgow, William Mackenzie, 1879 (8 vo., p. 7)

9. The Matriculation Albums of the University of Glasgow. 1728. transcribed and annotated by W. Innes Addison, Glasgow, J. Maclehose, 1913

10. "George Buchanaan" (Obituary), Br. Med. J., 1906, I:1078.

11. Grosfeld JL: "Groin hernia in infants and children ", in L.M. Nyhus and R.E. Condon (eds.),

Hernia, 3rd ed., Philadelphia, 1989, pp. 81

12. Buchanan G: "Operation for radical cure of hernia in children" Glasgow Med.J., 12: 426, 1880

13. Burton CC: "The evaluation and classification of operations for inguinal hernia", Surg.Gynecol.Obstet., 87: 313,1948

14. Ombrédanne L: Précis Clinique et Opératoire de Chirurgie Infantile, Paris, 1923

15. Shaafik A: "Invagination of the hernial sac stump: technique for repair of inguinal hernia", Am.J.Surg., 140: 431, 1980.

I am indebted to Derek D. Dow, Ph.D., and Götz Borgwardt, M.D. for their comments, and The Glasgow University Library, The Wellcome Institute for the History of Medicine, and the British Council Library, Ankara for their help in the preparation of this brief review.

TÜRK-İNGİLİZ ÇOCUK CERRAHİSİ GÜNLERİ

"II. Türk-İngiliz Çocuk Cerrahisi Günleri" 1991 Nisan ayının 4. haftasında İstanbul'da düzenlenecektir.

İngiltere'den Consultant düzeyinde 2 konuk konuşmacının katılımı ile gerçekleşecek olan bu toplantı, İ.Ü. Cerrahpaşa Tıp Fak., İ.Ü. İstanbul Tıp Fak. ve Marmara Ü. Tıp Fak. Çocuk Cerrahisi Anabilim Dalları ile British Council tarafından ortaklaşa düzenlenmektedir.

Geçen yıl olduğu gibi, bu yılda 2 günlük bir bilimsel program planlanmaktadır. Konu ile ilgili detaylı bilgiler, ilerki günlerde siz sayın meslektaşlarımıza iletilecektir.

Ayrıca bilgi sahibi olmak isteyenler şu adres ve teleonlara baş vurabilirler.

Cerrahpaşa Tıp Fak.

Çocuk Cerrahisi Anabilim Dalı

Prof.Dr. Nur DANİŞMEND

Prof.Dr. Cenk BÜYÜKÜNAL

Tel:5861592

İstanbul Tıp Fak.

Çocuk Cerrahisi Anabilim Dalı

Prof.Dr. Alaaddin ÇELİK

Tel:5239518

Marmara Tıp Fak.

Çocuk Cerrahisi Anabilim Dalı

Doç.Dr. Tolga DAĞLI

Tel:3400100