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SPECIAL ARTICLE

Pioneer 1907 doctoral thesis on emergency medicine in Spain: "The scope of emergency surgery in *Casas de Socorro*"

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This review and commentary of the doctoral thesis defended by Dr. Manuel Pascual Alonso in 1907, summarizes this pioneering author's account of the material and instrumental conditions in the emergency care facilities known as casas de socorro (first-aid or rescue facilities), the true forerunners of today's emergency health services. Dr. Pascual describes physician staffing and surgical practices in these centers. The thesis sheds light on the history of Spanish emergency medicine, revealing that Spain has a worthy, centuries-long tradition of emergency medical practice that has been underappreciated until now. [Emergencias 2013;25:409-414]

Keywords: History of emergency medicine. Doctoral thesis. Spain. Emergency care facilities. Retrospective study, documents.

Review of doctoral theses in medicine

There exists in medicine a tradition of performing studies on exemplary theses that had positive impact on a particular field of and more specifically on a particular specialty. These review studies adopt the format of articles, books or even theses, in which case this would be a thesis on a thesis. An example is a study by Herrera[1], which explores the doctoral thesis "Contribution to the study of leprosy" by Angel Ferrer Cagigal in 1909.

Such studies have a greater and more varied tradition in other countries. Sever, Namal and Eknoyan[2] reviewed the thesis of Frank on the benign nature of orthostatic proteinuria, whom they claim as a pioneer of modern Nephrology. The doctoral thesis of the Dutch physician Van Rhijn on Aphasiology, written in 1868, was recovered by Eling[3] and annotated with certain nationalist touches. According to Jewanski, Day and Ward[4], the first case of synesthesia was described in 1812 in the theses of Sachs et al., on albinism. Kaiser[5] claimed that Diamantberger was the first to discover cases of juvenile chronic arthritis in her PhD thesis of 1890. Valentine[6] wrote about the pioneering thesis in American Dermatology written in 1808 by Shattuck. The number of reviews of a single concrete thesis is considerable, but needs more complete elaboration. Most medical disciplines and specialties are replete with major pioneering theses that made a qualified seminal contribution.

This type of historical study, focusing on a single scientific paper, well might be termed idiosyncratic analysis of case-theses considered an exemplary dissertation, pioneer or carried out by a prominent figure of particular scientific, academic or historical relevance. There are multiple reasons for carrying out such studies. On the one hand, to reveal the foundations of a discipline or med-

ical specialty, and contextualize the origins; but also to explain the impact of an exemplary thesis on research and clinical practice. In addition, these studies also reveal interest in old doctoral theses as a tool for recovering forgotten or little known aspects of medical work and thus offer a historical view. The case that concerns us here is about Spanish emergency services.

Other reasons for such studies include naming techniques or procedures after their discoverers or bearing witness to a scientific achievement with personal or nationalist intentions, or simply narrating the genesis of a significant medical finding.

Characterization of the doctoral thesis of Pascual Alonso

On November 4, 1907, Manuel Pascual Alonso[7] defended his doctoral thesis in the Faculty of Medicine, Central University of Madrid, entitled "Scope of medicine of urjencias [sic] in las casas de socorro [CS]", meaning houses of relief, aid or help. The thesis only received discreet approval by a learned tribunal comprising: Ildefonso Rodríguez Fernández (Professor of the history of Medicine) who acted as the reader; Manuel Menéndez Potenciano, reader; Julián Calleja Sánchez, who acted as President; Isidoro Rodríguez Trigueros, Secretary, and, as vocals, Enrique Pérez Zúñiga and Luis Guedea y Calvo, urologist. Professor Julián Calleja was a specialist in neuro-anatomy. He was Dean of the Faculty of medicine for a long time and almost perpetual President in theses tribunals. He was an immense character and staunch adversary of Santiago Ramón y Cajal.

The thesis consists of 193 pages measuring 16 x 21 cm with the reverse side blank, bound in a hard cover and sewn with thread. The text is typed (with quite a few corrections), which is a remarkable advance for the era, when most theses were hand-written. The literature cited[7], in footnotes with the name of the author and title of the work, is ample and updated for the time; surgical manuals in Spanish abound (i.e. Treaty of antiseptic surgery by Cardinal, p. 26), in French (i.e. Le lavage du sang by Félix Léjars, p. 47), in Italian (i.e. different works by Vincenzo Omboni referred to in Spanish and edited in Cremona, p. 166) and even contributions by relevant surgeons such as the father of surgery in the U.S., Samuel Gross (p. 175) or Emil T. Koscher Senzoy, Nobel Prize in medicine in 1909 (p. 177).

The thesis is indexed in the collection of Theses in the library of Complutense University of Madrid and its reference is accessible through the Swan catalog. Unfortunately, it has not yet been digitized, so access should be through authorized personal contact in the reading room.

The author of the thesis: Manuel Pascual Alonso

Information about the author is scarce. That offered here is from the text of the thesis. Manuel Pascual Alonso had a degree in medicine from the University of Valladolid. He worked as a surgeon at the hospital of the University. He was an organizer and active physician in the CS of the city of Valladolid, located on Conde Ansúrez street, in a building that no longer exists today. Possibly, he was also head of the section of surgery at the Hospital de Esgueva. Our author[7] could have done a postgraduate diploma in the CS of the less-populated and more eliye Madrid districts of Palace and Congress (p. 11); a center which praises for being endowed with excellent instruments and apparatuses. He was a friend of the Swiss Ambassador, Alfredo de Mengotti, whom he thanks (p. 29) for the provision of a valuable and numerous surgical instruments, which he donated in 1905 to the CS of Valladolid.

Contextualization of the thesis

At the medical level we find ourselves in an era (1907), early 20th century, full of remarkable progress: discovery of X rays, new surgical techniques, use of antiseptics and new vaccines and high concern for hygiene; However, we are still at a pre-antibiotic stage, before the most terrible of pandemics, the so-called Spanish flu, which erupted in 1917.

The socio-political context of the time offers a devastating panorama; the end of colonial rule in 1898 together with an acute social, political and institutional crisis. There were problems such as the intensification of the social struggles of workers and peasants, the religious question, the military problem, political tension at home and the North African war were present. Maura reform efforts did not succeed.

Brief history of CS or houses of help/relief

CS were a typically Spanish medical charitable institution. Indeed, Pascual[7] (p. 11) states: "...fills

us with intimate satisfaction that Spain is the first European nation to institute these houses", likening them to the Hospital of Nuestra Señora del Buen Suceso, founded in 1529. The author himself[7] (pp. 13-14) shows that this hospital was created in 1529 by Papal Bull of Clement VII issued in Bologna and at the request of the Emperor Carlos V, calling it the Court's Hospital until the beginning of the 16th century. However, the literary vision of Pío Baroja of these CS and Madrid medical centers is less optimistic according to Del Moral8; although the Hungarian physician Philip Hauser in his medico-social report[9] in 1903 gives a more balanced and detailed vision.

CS were a welfare product generated by the Liberal governments of the 19th century which remained until well after the mid-20th century. They replaced centers and healthcare services that were run by the Catholic Church which, after the successive confiscations, disappeared. In turn, CS were later displaced by nationalized social medical institutions and the social security system. Carballo[10] considers that the CS were basically a municipal, healthcare institution in conjunction with nursing homes for the elderly, hospices and orphanages. Initially, the main function was to accommodate orphans and others homeless people, but over time, they also began to offer emergency medical care and other social services.

Each City Council established a regulation, although the general model was that of the city of Madrid[11], which in its General Regulation of the Municipal charities in Madrid in 1875 defined CS in article 4 as "establishments intended for the immediate provision of aid to anyone victim of an accident, in a public place, or assault, or unforeseen circumstances; to facilitate the first medical attention at the home of the patients, in case of imminent risk, to provide daily public consultation for the poor, and to attend within the establishment those sick or injured people who cannot be transferred home or to a hospital; and finally, to propagate vaccination operations at appropriate times". Such regulation is a capital document to understand the origin, meaning and functions of CS.

Costs generated by the CS were covered by the municipal budget through monthly payments, although voluntary subscriptions of the residents of the district, alms, bequests and other donations were also accepted. Expenditure was classified as medicinal (including milk for infants), food and coal, and materials (including orthopedic material).

The author's conception of emergency medicine

For Pascual[7], emergency medicine was all medical-surgical care provided to a person victim of a sudden accident (p. 14). Cleanliness and hygiene must be "the goal of junior staff, abiding by the recommendations made by physicians on this issue" (p. 21). The author continues[7] declaring that "the antiseptic method must be the only one to follow, because the majority of open injuries seen in the CS are likely to be infected" (p. 23)... "From all this can be deduced that the wound must be cleansed [underlined in the original] ... in the vast majority of cases" (p. 24). He places more emphasis on preoperative measures, where more time should be invested than in the operation itself; time dedicated to "sterilization in the surgical field, the hands of the surgeon and his assistants, the instruments used and everything that may be in contact with the wounded" (p. 26).

The staff of relief houses

The basic CS medical staff consisted of lecturers in medicine, surgery and pharmacy (permanent staff) and junior staff (practitioners, orderlies and pages), "who have to whatever is ordered by the doctor, with the greatest diligence and zeal possible" (pp. 36-37). Pascual[7] disregards the practitioner who in his opinion "should be replaced by medical students in the last three groups" (i.e. years of training) (pp. 37-38). Such personnel were divided among different districts according to needs and under the supervision of a City Councillor, who fulfilled the role of inspector for this professional group.

The administrative structure of the CS was formed by a President appointed by the Mayor, a Vice President, a secretary-auditor who elaborated accounts, a Deputy Secretary, a depositary and patient visitor vocals who were responsible for carrying out home-based care of the poor.

Type of patients attended by CS

Pascual[7] describes the types of patient attending a CS: "these charitable centers attend people who are victims of accidents in search of healing, relief or solace for the ills befalling them... There are individuals frozen, burnt, wounded and bruised, fractured and broken ... . There are also people demanding the services of a doctor for circulatory disturbances

(hiperemias e inkemias [i.e."isquemias"]), osmotic and nutritional disturbances" (pp. 4-5). He continues saying that "the doctors are often required to assist victims of paroxysms and fits. And also the diathetic and those with fever or inflammatory diseases do seek the services of the doctor on duty" (p. 5).

Apart from the numerous surgical treatments that are dealt with in the thesis, some elaborately such as penetrating wounds to the chest (pp. 160-169) and abdomen (pp. 171-176) or the removal of foreign objects introduced by any bodily orifice (pp. 109-136); diseases or other illnesses with medical or surgical treatments are also considered such as: fainting due to acute anemia (pp. 45-50) treated with injections of salt water, burns (pp. 95-100), chemical burns (pp. 100-101), electrocution (pp. 101-106), freezing (pp. 107-108), choking and drowning (pp. 156-159), hernias (pp. 81-83) or the treatment of terror (pp. 5051) with injections of morphine.

The range of patients and agents attending a CS was not limited to medical cases, but extended to social issues. Indeed, the doctor on call had to "attend the invalid seeking to enter a hospital, which calls for a certification to be able to be assisted by the administrative authority..." (p. 8).

Functions of the relief houses

Pascual[7] distinguishes three basic functions of the CS: surgical, medical and health care (p. 14). The doctor of a CS not only worked in the place, but also attended external patients (at the sick house, at the place of an accident) when required. Before this, the author[7] questions the limits of the aid, of the intervention (how, when and why) bearing in mind the existence of the great hospital as a reference point (p. 6). But he also warns about the old and perennial problem of improper use of emergency services such as the CS (p. 4).

Some of the tasks were purely bureaucratic, such as issuing certifications to be aided for the purchase of medication by the administrative authority, filling in forms with the details of the person assisted, for vocal patient home visits etc. Pascual[7] (p. 8-9) questioned this work because "it can be remedied with money and food, and makes the doctor waste study time".

The building of the casas de socorro

Pascual[7] (pp. 15-19) outlines the characteristics, if not ideal, at least acceptable, of the CS building itself; as well as the type of building, the premises and services. The building should be located in a central location "for the population, ensuring as far as possible that it is next to large manufacturing centers, and conveniently distanced from hospitals, clinics, and health centers". "The best system of construction would be a single separate building, perfectly isolated, like a low cost villa [underlined in the original], so that after a few years it could be destroyed, without representing a waste of importance" (p. 15). As a comparison, the CS would be halfway between current hospital and primary care EDs.

According to author[7], the desirable characteristics of a CS are many and varied, which surprised us for their number and uses (p. 18-20). The centerpiece would be a wide and perfectly lit, ventilated and heated room for surgical interventions. He continues: "two rooms for wound cure, a room to store instruments, an office with a first aid kit, several rooms for junior staff, a room for medical sessions, a waiting room, restrooms for both sexes, a room for documents and another accessory department. Always in sight, there should be stretchers and media for transporting the sick. This building should be on a site with reasonable decline suitable for rapid and complete drainage after wash-down. The angles formed by walls meeting and with roof and floor should be rounded. There will be no draperies, curtains or ornaments and furniture, and in terms of number, will be as limited as possible."

Instruments and equipment recommended

The list of instruments, material and apparatuses that Pascual[7] recommended is extensive, varied and very detailed, although he claimed his intention was not to "make a (complete) catalog of what should be in all CS" (p. 27). A footnote details the assorted material donated (p. 29-32); and also another list of equipment and suitable instruments, which he distinguishes from that donated, along with the names of their inventors. For example: the mask for chloroform anesthesia (recommending that of Demarcuay), various instruments by Frike, Charrriere, Luer and Tillaux, Pean's hemostatic T forceps, triangular, oval, etc. [a real luxury for the author], Bellot's probe, etc. This in itself could be studied in depth as a glossary on medical vocabulary, including instruments and equipment, that Pascual recommended and commented. It would also be interesting to verify authorship, origin and current validity of such apparatuses.

The quality of the material "will be high because it must be metal, strong and smooth" (p. 27). The acquisition, maintenance and repair "must be done with exquisite care by technical staff and supported by the generosity of well-off neighbors" (p. 29).

Pascual's concern about asepsis leads him to recommend "a heated hand-basin for washing the hands of doctors and junior staff" (pp. 19-20) and to abundant spittoon bowls: "..... to partly avoid the development of major infectious diseases, nobody should spit out on the ground, so all departments will have elevated spittoon bowls containing anti-microbial liquid" (p. 22). These resources should be usual in a CS; however, other instruments of asepsis would not be general available, but he recommended a universal Simmelburg sterilizer or similar (p. 31) and later comments: "it is not always easy to have these resources, although they are required in any operation"(p. 32).

Surgical practices and medical proposals to carry out

A description of medical and surgical procedures occupies the central part of the thesis[7]. These are well classified, diversified, documented, even with ancient references (eg. Pablo de Egina, p. 32; the Fray Cosme trocar, p. 129) and others updated to the practice of the time. The amount and complexity of surgical practices is amazing, even for a modern sophisticated surgery department.

Pascual[7] describessome of the practices he considers useful and innovative for the time; namely: the usefulness of saline solution as a substitute for blood transfusions in hemorrhages (pp. 32-33); Malgaigne treatment for injury of pelvic vertebrae (p. 78); slow tracheotomy or Trousseau's operation (p. 119); detailed consideration of occlusions (p. 109); the use of powerful painkillers such as morphic hydrochloride (p. 162), cocaine (p. 178), which was popularized by the French surgeon Paul Reclus, and opium (p. 176); the use of Murphy and Chaput buttons (p. 176); and Michel's staples (p. 174).

Discussion

Reading this thesis generates abundant reflections and personal views. On reading about the desirable characteristics of a CS, one is reminded that, even today, there is a lack of vital and professional space for current emergency services. This objective remains to be fully achieved. Multiple surgical practices, proposed in this thesis, form a cornerstone for discussion on professional skills of the emergency physician. Certain treatments are clearly outdated and even debatable, such as the use of leeches for the treatment of bruises (p. 60). But the ubiquitous spittoon bowls were not trivial or funny, considering the epoch. This resource facilitated and contributed to eliminating the unhygienic and widespread practice of spitting on the ground, so pervasive in many countries. The problems of improper use of the emergency services and the problems of management problems that Pascual denounced continue to the present day, with difficulties in management and coordination with other areas health[12], concern for quality care[13], management of beds and reducing overcrowding of the emergency department[14,15], reducing delay in the attention of the sick[16] or the perennial concern for the economic and clinical efficiency associated with limited funding[17].

It is comforting to see how Spanish emergency medicine (EM) has a notable place in the history of medicine and that our scientific and professional identity is more defined than even that of other officially recognized specialties. The now centennial thesis of Pascual Alonso[7] constitutes a relevant pioneer milestone in Spanish EM, and deserves to be scrutinized in depth and extensively reported. For this reason, a facsimile edition of the work would be welcome or at least a scanned version for wider dissemination. We have a remarkable and dignified history of postgraduate training at the highest level (doctorate) in the specialty of EM.

This thesis raises new questions and useful debate. For example, the sense and current validity of surgical practices that are proposed, measurable after an up-to-date review of the literature. The Malgaigne pelvis fracture alone deserves an extensive article, and we have recovered 36 references on the ISIWOS SCI database, including the Bartonicek review[18]. Official recognition of the specialty of EM must come, and among other achievements, it will include its own doctoral theses, with a special place for a remarkable historical thesis: "Scope of emergency surgery in Casas de Socorro (1907)" by Dr. Manuel Pascual Alonso.

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Una tesis pionera en la Medicina de Urgencias y Emergencias española: "Alcance de la *cirujía* [sic] de urgencias en las casas de socorro" (1907)

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Este artículo descubre, comenta y revisa la tesis doctoral defendida por el doctor Manuel Pascual Alonso en 1907. En ella se expone el estado material e instrumental, agentes médicos implicados y las prácticas quirúrgicas de alcance en las casas de socorro, verdaderos antecedentes de los servicios médicos de urgencia actuales. Tal tesis pionera es un hallazgo relevante e iluminativo para la medicina española de urgencias y emergencias y que pone de manifiesto, a partir de este estudio retrospectivo, una valiosa y multisecular tradición médica de urgencias en España desconsiderada hasta ahora. [Emergencias 2013;25:409-414]

Palabras clave: Historia de la medicina de urgencias. Tesis doctoral. España. Casas de Socorro. Estudio retrospectivo-documental.