Can Health Authorities Stop the Medicalisation of Childbirth? The Case of Spain in the Early 20th Century

¿Pueden las autoridades sanitarias parar la medicalización del parto? El caso de España a principios del siglo XX

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Abstract: The medicalisation of childbirth is a worldwide trend, that has its roots in past centuries. Despite being a widely studied phenomenon, the attempts taken to prevent its spread have rarely been addressed. This research presents the measures taken by the health authorities against the medicalisation of childbirth in Spain, in the early twentieth century. The episode was linked to a famous obstetrician, Miguel Orellano, who published several papers advocating a new method of conducting a delivery. This method involved a great deal of unnecessary intervention that turned delivery into a major surgical procedure. We will see if the health authorities have achieved their goal.

Palabras clave: Medicalisation. Induced delivery. Ergot. Forceps. Chloroform. General Directorate of Health.

Resumen: La medicalización del parto es un fenómeno global, que hunde sus raíces en los siglos pasados. Esta investigación expone las medidas que se tuvieron que tomar por parte de las autoridades sanitarias para luchar contra la medicalización del parto en España a principios del siglo XX. El episodio estuvo relacionado con un conocido obstetra, Miguel Orellano, quien había publicado algunos artículos defendiendo una nueva forma de atender un parto. Este nuevo método implicaba una gran cantidad de intervenciones innecesarias que convertían el parto en un acto quirúrgico mayor. Veremos si finalmente las autoridades sanitarias lograron su objetivo.

Keywords: Medicalización. Parto inducido. Comezuelo de centeno. Fórceps. Cloroformo. Dirección General de Sanidad.



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HISTORIA, HISTORIA DEL AI Y GEOGRAFÍA The medicalisation of childbirth is a worldwide trend³. A recent report by the World Health Organization (WHO) stresses the need for women to play a greater role, and for a reduction in the number of obstetric interventions, including induced labour:

In spite of the extensive debates and research that have been in progress for several years, the concept of «normality» in labour and childbirth is neither universal nor standardised. The application of a wide range of procedures in delivering aimed at initiating, accelerating, concluding, regulating and monitoring the physiological process of labour has increased considerably over the last two decades, with the aim of improving outcomes for mothers and babies. This increasing medicalisation of the processes involved in childbirth tends to undermine the woman's own authority when giving birth, and has a negative impact on her experience of childbirth. Furthermore, the increasing use of interventions during delivery in the

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¹ López Trujillo, Noemí, «Una juez obliga a una mujer que quería parir en su casa a ingresar en el hospital. El centro médico pidió la orden al considerar que había riesgo de muerte del bebé al sobrepasar la 42ª semana de gestación», El País, 26 de abril de 2019.

² El Parto es Nuestro, «El Parto es Nuestro y dona Llum llevan el caso de la mujer de Oviedo ante las Naciones Unidas», Blog de El Parto es Nuestro, 2019.

³ There is an extensive literature on the medicalisation of childbirth globally over the last few centuries. See, for example, Wood, 2018; Christiaens, Nieuwenhuijze and de Vries, 2013; MacDonald, 2011; Al-Gailani and Davis, 2014. Some works by medical historians who have focused on the process of medicalisation of childbirth in Spain are, for example, Rodríguez Ocaña and Perdiguero Gil, 2006 and a recent work: Ruiz-Berdún, 2023. From the field of anthropology, we can consult: Murialdo Miniello, 2020; Barceló y Montes Muñoz, 2016; Blázquez Rodríguez, 2009 and Montes Muñoz, 2007. See also Recio Alcaide, 2015.

absence of clear indications continues to widen the health equity gap between wealthy and less wealthy environments⁴.

The conclusions of the WHO are not new⁵. In the specific case of Spain, the measures taken by the *Ministerio de Sanidad y Consumo* [Ministry of Health and Consumer Affairs], which culminated in the publication of the *Estrategia de Atención al Parto Normal* en el Sistema Nacional de Salud [Care Strategy for Normal Childbirth in the National Health System]⁶, do not seem to have had the intended effect. According to the data in the most recent *European Perinatal Health Report*, Spain is among the European countries with the highest rates of obstetric interventions, including caesarean sections and instrumental deliveries. While the European average for instrumental vaginal deliveries is 6.1%, the Spanish average is 14.4%, the highest of all European countries analysed, without resulting in a significant difference in perinatal mortality rates. For induced deliveries, the subject of this article, the 2012 evaluation of implementing the *Care Strategy for Normal Childbirth* cites an induction rate of 19.4% of deliveries. This is a much higher figure than the WHO benchmark, which is lower than 10%:

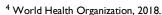
The causes of this excessive number of inductions warrant investigation, in order to assess this data as a whole and consider the indications for inductions delivery and compliance with the CSNC recommendations by obstetrics teams⁷.

Despite this warning, the problem has not improved in recent years according to the Ministry of Health itself:

In 2018, of the 250,704 births attended in Spain, labour was induced in 83,624. The percentage of births induced in public hospitals-SNS was 34.2% (n=77,246), continuing the upward trend of the period 2010-20188.

Inductions are also related to triggering a chain of interventions, including artificial amniorrhexis, the use of medication, and an increase in instrumental deliveries.

At this point, some consideration should be given as to whether government measures are sufficient to reverse the process of medicalisation of child-birth. All of the above the points suggest that the obvious answer is negative. The medicalisation of childbirth throughout history has been widely studied, but the measures taken to prevent its spread have rarely been addressed. We discuss



⁵ Matute Albo, 2006.

⁶ Ministerio de Sanidad y Consumo de España, 2007.

⁷ Ministerio de Sanidad, Servicios Sociales e Igualdad, 2012, pp. 20-21.

⁸ Ministerio de Sanidad, 2020, p. 31.

herein the measures adopted by Spanish health authorities, in the early twentieth century, in what can be considered a pioneering governmental attempt in the Western world for the defence of physiological deliveries?

Several primary sources have been used for this work. In addition to the articles published in La Revista Médica Valenciana 10, which have already been used by other authors, there is one primary source that has not been used to date. This is one of the four legislative publications that were published while Angel Pulido was at the head of the Directorate General of Health!. It is a key document for understanding two very different positions on obstetric care in early 20th century Spain.

I. OBSTETRICS IN SPAIN IN THE EARLY TWENTIETH CENTURY

During the nineteenth century, the development of obstetrics led to a decline in the importance of the role of women during pregnancy and childbirth, which affected both pregnant women and those who had traditionally cared for women in labour: certified and traditional midwives. Advocates of positivist medicine moved swiftly to become prominent figures in their specialist fields, discovering new diseases and inventing increasingly sophisticated instruments that were invariably named after them¹². This desire to be remembered by posterity was also reflected in the publication of scientific books and papers. Treatises on childbirth made way for treatises on obstetrics, a more sophisticated concept that was considered more scientific. Midwives made way for obstetricians at deliveries involving wealthy women, especially in urban areas 13. However, since dealing with a normal delivery was neither difficult nor heroic, the use of instruments and medication during childbirth became a regular occurrence. Making

childbirth into a complicated surgical procedure, in which the obstetrician saved





⁹ We have carried out a bibliographic search for antecedents of government intervention in defence of physiological childbirth or against the medicalisation of childbirth at the end of the 19th and beginning of the 20th century without finding any results.

¹⁰ The first issue of the journal La Medicina Valenciana was published in January 1901. The journal was founded by Miguel Orellano e Iranzo (Valencia, 1860 - Cullera, Valencia, 1903), the main protagonist of this paper, and José Viciano Carbonell (Algemesí, Valencia, 1860-1932), director of the Algemesí Ophthalmological Institute, who left the editorship of the magazine in 1902 («Noticias», La Medicina Valenciana, 24, 1902, pp. 383-384). It was published monthly and included sections devoted to «Original papers», «Clinical notes», «Press review», «Aphorisms» and «News». On the death of Miguel Orellano in 1903, Ramón Gómez Ferrer (Valencia, 1862-1924), professor of Obstetrics at the University of Valencia, took over as director. The journal ended its life at the same time as its last Gómez Ferrer, who died in 1924. In fact, the last and only issue of 1924 was a tribute to the deceased by his collaborators.

¹¹ Pulido Fernández, Ángel, «Mi Gestión Sanitaria III», El Siglo Médico, 50, 2.560, 4 de enero de 1903, pp. 5-8.

¹² Arney, 1982.

¹³ Ruiz-Berdún, 2014.

the life of the woman and her baby from unimaginable dangers, provided compensation for the financial outlay that families had to make in order to pay their fees, and increased the intrinsic value of doctors compared to other types of care ¹⁴. The use of anaesthetics in childbirth, which was pioneered by Simpson in 1845, became almost essential as symphysiotomies and other surgical techniques became more widespread ¹⁵. By the late nineteenth century, the medicalisation of childbirth had reached unprecedented levels in Europe, and Spain was no exception.

At the beginning of the twentieth century, Spain did not have a ministry specifically devoted to matters of health. The *Dirección General de Sanidad* [General Directorate of Health], which was affiliated to the *Ministerio de la Gobernación* [Ministry of the Interior], was responsible for health-related issues and the professionals working in the field¹⁶. On 23 February 1902, the General Directorate of Health published a circular in the official government newspaper, called *Gaceta de Madrid*, «concerning the use of certain procedures in normal deliveries»¹⁷. The publication of several articles in the journal *La Medicina Valenciana* caused serious concern among those in charge at the Directorate, which at the time was headed by Ángel Pulido (1852-1932) in his capacity as General Director of Health (1901-1902)¹⁸. Such was the extent of the controversy that shortly after the circular was published, the newly released legislative series of the General Directorate of Health devoted its second volume to this subject¹⁹. The man behind this controversy was the Valencian doctor Miguel Orellano.



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¹⁴ This development of the obstetric speciality would correspond to the second stage of the medicalisation process, with the consolidation of the hegemonic medical model according to Perdiguero and Ruiz-Berdún, 2017, p. 248.

¹⁵ Charlier, De l'emploi des anesthésiques, p. 14.

¹⁶ For more information about the General Directorate of Health, see Molero Mesa and Jiménez Lucena, 2000.

¹⁷ Dirección General de Sanidad, «Circular de la Dirección general de Sanidad relativa al empleo de determinados procedimientos en los partos normales», Gaceta de Madrid, 54, 23 de febrero de 1902, pp. 811-812.

¹⁸ Ángel Pulido Fernández (1852-1932) studied medicine at the Central University of Madrid between 1868 and 1873, and he received his doctorate in 1875, at a politically complicated time that affected university education (Ortega, 1922, p. 21). Pulido was a great collaborator of Dr. Pedro González de Velasco (1815-1882). At the Anthropological Museum founded by Velasco in 1875, Pulido was the director of its organ of expression, El Anfiteatro Anatómico Español, and even ran a free school for midwives (Ortiz Gómez, 1999; Ortiz Gómez and Martínez Padilla, 1997 and Ortega, 1922, p. 11). Between 1874 and 1877, Pulido was the first secretary and founding member of the Spanish Gynaecological Society, and was in charge of the General Directorate of Health between March 1901 and December 1902 (García Guerra and Álvarez Antuña, 1994, p. 25). Ángel Pulido had a very naturalistic vision of motherhood, in which he saw the true essence of femininity. For example, he believed that upper-class women should avoid using wet nurses when rearing their children, and instead breastfeed themselves. See Jagoe, 1998, p. 329.

¹⁹ Dirección General de Sanidad, Sobre provocación del parto, 1902.

The work that delves more deeply into the figure of Miguel Orellano²⁰ is the phd thesis of Alcira Reyno, who presents the gynaecologist as an eminent victim of the authoritarianism and chauvinism of Ángel Pulido²¹. We will discuss these findings bellow.

2. MIGUEL ORELLANO

Miguel Orellano e Iranzo (*Figure 1*) was born in the city of Valencia on 12 July 1860²². He graduated in Medicine in 1881, and obtained his doctorate three years later. His degree focused on obstetrics, under the supervision of Francisco de Paula Campá²³.

Orellano appears not to have been the easiest character to deal with: «...inconsistencies of character ... made him considered by some as kindness itself and by others as a bad-tempered and intolerant genius»²⁴. His unstable personality may have earned him few friendships and was perhaps an obstacle in his professional life, since despite his long career he did not obtain any of the positions in the official examinations which he sat for professorships. Nevertheless, he belonged to the Valencian Medical Institute, of which he became vice-president in 1899²⁵.

Orellano was an advocate of eugenics, and in his speeches, he recommended that «marriages should take place between robust and healthy men and women, so that the seed which bears fruit within her meets the necessary conditions to fulfil its great mission»²⁶.

See also Fresquet Febrer, 2017, pp. 92-93. Orellano is not listed among the hundreds of names in the first two volumes of the Historia de la Obstetricia y Ginecología Española [History of Spanish Obstetrics and Gynecology], in which he should be included on chronological grounds: González Navarro, 2006; Usandizaga Beguiristáin and González Navarro, 2007. He is briefly cited in the Historia de la Medicina Valenciana, as «the most important follower of Campá, and the author of notable studies are obstetric antisepsis and applications of forceps and ergot»: López Piñero, 1992, p. 100.

²¹ Reyno Álvarez, 2010, pp. 13-14 and pp. 303-304.

²² Barberá Martí, Faustino, «D. Miguel Orellano e Iranzo. Necrología», Revista Valenciana de Ciencias Médicas, 5, 61. 1903. p. 262.

²³ Francisco de Paula Campá y Portá (1838-1892) studied medicine in Barcelona (1855-1861) and obtained his doctor's degree, as was compulsory at the time, at the Central University of Madrid. In 1872 he obtained the chair of obstetrics at the University of Valencia where he had Orellano as a disciple: Salarich, 1953, pp. 216-217. Orellano helped to Campá to write his *Tratado completo de obstetricia (Full Treatise on Obstetrics)* (1885). When Campá left Valencia in 1889 to take up a post as professor of obstetrics at the University of Barcelona, Orellano took over with his clientele (Fresquet Febrer, 2017, p. 91).

²⁴ Barberá Martí, 1903, p. 261.

²⁵ Fresquet Febrer, 2017, p. 93.

²⁶ «Noticias locales», La Correspondencia de Valencia, 8.707, 18 de febrero de 1903, p. 2 y «Noticias locales», La Correspondencia de Valencia, 8.732, 15 de marzo de 1903, p. 2.



Figure I. Portrait of Miguel Orellano e Iranzo (Source: Barberá Martí, 1903, p. 263).

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As discussed in the introduction, in 1901, with José Viciano Carbonell, Orellano founded the journal La Medicina Valenciana²⁷. In its early issues, he used this journal to publish his own papers. These articles led to some alarm at the General Directorate of Health, since Miguel Orellano was —to use modern terminology— a highly interventionist doctor. Nevertheless, he had an extensive clientele among women belonging to Valencia's early twentieth century high society. Orellano died in Cullera on 28 August 1903, as a result of a gastrointestinal infection that further weakened his «weak and aged organisation»²⁸, and was also probably affected by the unforeseen consequences of publishing his papers.

3. THE CONTROVERSIAL PAPERS

The first of these articles explained the application of chloroform anaesthesia in normal deliveries²⁹. According to the paper, the use of chloroform in natural deliveries had its advocates and its detractors among the Spanish scientific community. Orellano himself argued that these differences of opinion were due more to rivalries between different schools than to genuine scientific opinions. The school to which Orellano belonged obviously advocated its use: the first volume of the second edition of his teacher's work, Tratado completo de Obstetricia [Full Treatise on Obstetrics], contains a chapter dedicated to anaesthesia in physiological deliveries³⁰. Orellano probably began to use anaesthesia in childbirth while he was working with Campá.

Based on his personal experience, Orellano overruled most of the objections made by other physicians to the use of chloroform in childbirth. He rejected the idea that the foetus could suffer from complications as a result of using chloroform, although he nevertheless accepted that a reduction in uterine contractility was a side effect, and under these circumstances he recommended «analgesia» rather than «anaesthesia». In his opinion, the major drawback of applying chloroform was that its administration tended to be a long process due to slow dilation. He had reached the conclusion that in order to overcome this problem, intervention was also necessary to ensure that the delivery would take place as quickly as possible³¹. As a result, he had developed a complex protocol that he used with his pregnant clientele, with impressive results, according to him.

²⁷ Reyno Álvarez, 2010, p. 83.

²⁸ Barberá Martí, 1903, p. 264.

²⁹ Orellano, Miguel, «Apuntes sobre la aplicación de la anestesia clorofórmica al parto normal», *La Medicina* Valenciana, I, 1901, pp. 23-32.

³⁰ Campá, Tratado completo de Obstetricia, pp. 514-530.

³¹ This sense of urgency, i. e. of wanting the woman going into labour to give birth as quickly as possible has been —and in some places remains— a constant feature until the present day. In some hospitals, «a good

The first step in his procedure was to wash the pregnant woman. In addition to recommending general warm baths, he prescribed doses of castor oil on the days before the delivery, to prevent «numerous and abundant bowel movements» from occurring while it was taking place³². He also recommended that on the days beforehand, the expectant mothers took an antiseptic, usually *naftol* β , which apparently prevented the appearance of very common gastrointestinal infections in the puerperium. Finally, he paid particular attention to the perineum, and recommended antiseptic vaginal irrigation for the purposes of hygiene.

He said that he performed no intervention during the prodromal period of labour, until the woman asked him to ease her pain. At this point his interventionism emerged in stark relief. The woman was administered 50 grams of ergot in powder or liquid form. Later, when her contractions grew stronger, she was placed on an obstetric table with her legs in the lithotomy position, and anaesthetised. After the anaesthetic had been administered, the tocologist artificially accelerated the dilation of the cervix. Various alternatives were possible at this point. If the cervix was dilatable and the delivery involved more than one child, it was forced open using the fingers. If the cervix was poorly dilated, but flexible, the forceps was introduced and foetal extraction was performed. When the cervix was dilated to a limited extent, but also somewhat rigid, the three-pronged Tarnier dilator was used to achieve sufficient dilation to insert the forceps, after artificial amniorrhexis (*Figure 2*).



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midwife» is considered to be one who makes the women she is caring for give birth as soon as possible, and a good team is one that «clears the delivery room» before the next group of professionals arrives to take over from them.

³² Castor oil was therefore the forerunner of the cleaning enema that is still used today in hospitals. Although its use was not endorsed by scientific evidence, many professionals have continued to use it for their own personal reasons, i. e. not having to see, smell or clean the faeces of the woman giving birth. In fact, an enema that has not been completely evacuated can often provide the perfect vehicle for faecal matter to enter the birth canal, as it dilutes stools and makes them pass more easily into the vagina, creating a potential source of infection for the mother and for the future baby.

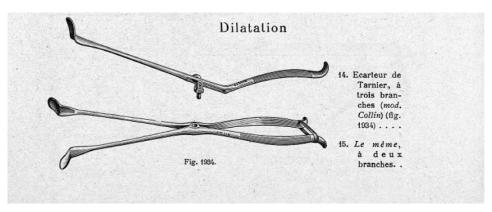


Figure 2. The three-pronged Tarnier dilator (Source: Collin, 1935, p. 69).

Of course, all these aggressive manoeuvres must have left the female reproductive system in a pitiful state. However, Orellano claimed that «women giving births while anaesthetised completely recover in just a few days», and furthermore: «In all the deliveries I have attended using anaesthesia, the children were born alive and healthy, they cried quickly, and no harmful influence that could be attributed to chloroform or ergot was apparent».

Orellano concluded his article by recommending that the forceps should only be applied in the superior strait of the pelvis by experts. The article ended as follows:

Such is the confidence that anaesthesia applied to normal delivery warrants; I believe it is so benign, and above all so useful for the best and swift recovery of post-partum women, that I consider myself obliged to recommend it on all occasions when general anaesthesia is not contraindicated, and when it is accepted, without receiving higher fees for anaesthesia and related operations, which I am accustomed to apply in normal and ordinary cases³³.

The numbers of these normal and ordinary cases at his surgery must have been declining. The paper was basically an important means of self-publicity for the tocologist. On the one hand, he discussed his exceptional qualities as an obstetrician —his knowledge of how to use a forceps in the superior strait, the lack of maternal and foetal deaths under his care, etc.—. On the other, the expense involved in the free application of chloroform would be significantly offset by the considerable savings of time that these instrumental deliveries provided.

³³ Orellano, Miguel, «Apuntes sobre la aplicación de la anestesia clorofórmica al parto normal», *La Medicina Valenciana*, Orellano, 1, 1901, p. 32.

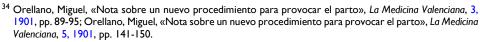
The second of the articles mentioned in the circular was published in two parts, in issues 3 and 5 of *La Medicina Valenciana* in 1901³⁴. In this occasion, the author presented a new procedure for inducing labour that he had devised himself: for three or four days prior to the agreed date for childbirth, «the patient» had to take a large spoonful, every hour, of the following potion:

Sulphuric ether	I gram
Distilled water	140 grams
Amyl nitrite	30 drops
Cinnamon tincture	5 grams
Simple syrup	60 grams

The potion was intended to «excite the nerve centres» of the pregnant woman, and according to the author, this was a key factor in artificially inducing her contractions. On the day chosen for inducing the delivery, the woman had to take four half-gram doses of ergot at intervals varying between half an hour and two hours, depending on the pregnant woman's gastric tolerance³⁵. According to the author, this usually prompted the delivery within less than an hour. Once the delivery began, there was a choice between letting «the patient's own strength conclude the delivery» or using the extensive repertoire of interventions available in his method: an administration of chloroform, forced dilation and forceps.

Following his explanation of the induction method, the author presented several clinical cases, which he called «observations», in which the procedure had been used and which corroborated its reliability. Four of these «observations» appeared in issue 3 of *La Medicina Valenciana*³⁶ and the rest, amounting to a total of nine, in issue 5³⁷.

As regards his induction method, the tocologist insisted on the need to take the etherised potion so that the subsequent administration of the ergot had



³⁵ The use of ergot had become widespread and it was even overused during the nineteenth century. However, the obvious evidence of the poor obstetric results that it could lead to had led many obstetricians to rule out its use before the expulsion of the foetus: Ruiz-Berdún, 2015.



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³⁶ Orellano, Miguel, «Nota sobre un nuevo procedimiento para provocar el parto», *La Medicina Valenciana*, 3, 1901, pp. 89-95.

³⁷ Orellano, Miguel, «Nota sobre un nuevo procedimiento para provocar el parto», La Medicina Valenciana, 5, 1901, 5, 1901.

the desired effect on uterine contractility. He claimed that this was the most original contribution made by the new procedure. He also argued that the administration of ergot was safe in the doses he used, in contrast to other authors who used «particularly toxic doses [40 gr] of ergot» 38.

Probably, if Orellano had limited his observations to purely pathological cases, his articles would not have attracted much attention from the General Directorate of Health. However, some of his «observations» mentioned that the deliveries had been induced for personal reasons, which were unrelated to obstetric or medical pathologies. For example, in his third observation, his justification for bringing forward the delivery was that the pregnant woman did not want to delay her trip to take the waters at the spa in Marmolejo (Jaén)39. In his fifth observation, the gynaecologist himself had a journey planned:

On 2 August 1900, a lady for whom I had attended two previous deliveries missed her ninth menstrual cycle. In mid-July, I mentioned to her that it was possible I would not be attending to her in her next delivery, because I needed to leave the city and seek in the countryside the health that I was losing very quickly. The mere announcement of my temporary absence made such an unpleasant impression that I finally had to make a proposal, which was accepted. I offered the pregnant woman the opportunity to bring the birth forward, guaranteeing the result, and we agreed that she would give birth on 22 July in the afternoon. I therefore attended to her during the delivery, and treated her during the postpartum period until I August, the day set for my departure from Valencia 40.

As can be deduced from its papers, Miguel Orellano's clientele probably contained very few women with limited resources. At a time when maternity insurance did not yet exist, the births of women with few resources were attended by the mutual insurance companies41, by Municipal Charity, or by the very widespread practice of obtaining help from a neighbour⁴². While, obstetricians, especially in the cities, had monopolised deliveries among the well-to-do. From the 19th century, but especially at the beginning of the 20th century, small surgical

³⁸ Orellano, Miguel, «Nota sobre un nuevo procedimiento para provocar el parto», La Medicina Valenciana, 5, 1901, p.149.

³⁹ Orellano, Miguel, «Nota sobre un nuevo procedimiento para provocar el parto», La Medicina Valenciana, 3, 1901, p. 94.

⁴⁰ Orellano, Miguel, «Nota sobre un nuevo procedimiento para provocar el parto», *La Medicina Valenciana*, 5, 1901, pp. 141-143.

⁴¹ See: León Sanz, 2021.

⁴² After a long gestation period, Compulsory Maternity Insurance was approved in 1929, although it was not implemented until 1 October 1931. In addition to medical care during childbirth by a doctor or midwife, the insurance benefits included the right to necessary pharmaceutical products and compensation during the compulsory 6 weeks' leave after childbirth: see Samaniego Boneu, 1988, p. 277.

clinics, some specialising in obstetrics, began to proliferate in the cities, using the daily and medical press as a form of promotion⁴³, but still the majority of deliveries were attended at home. A doctor's failure to attend a birth meant a reduction in his income, with the added risk of losing clientele if the colleague who replaced him made a good impression on the mother. The solution that Orellano found was soon adopted by other obstetricians. The members of the General Directorate of Health decided to take action because of its concern about the possibility of these practices becoming widespread.

4. THE ENQUIRY TO THE VALENCIA COLLEGE OF PHYSICIANS

Since Colleges of Physicians were responsible for their members' ethical conduct⁴⁴, and as Orellano was registered in Valencia, the first step taken by the General Directorate of Health was to contact the College⁴⁵. The enquiry was made on 12 August 1901, and was signed by Ángel Pulido. In his presentation of the facts, he referred only to Orellano's second paper and requested that the College answer a questionnaire consisting of seven questions on the subject «as soon as possible».

I. Is it acceptable in medical ethics that without a dystocic or medical indication to justify it, a normal pregnancy should be shortened and a delivery induced before its natural term? 46.

The answer to this question was negative. In the opinion of the representatives of the Valencia College of Physicians, a delivery being induced before its natural term would not be accepted by science, even in the future⁴⁷. They were obviously very much mistaken.

2. Is it acceptable for a practitioner of medicine to subordinate the artificial induction of a birth to the sole convenience of his stay in, or absence from, the place where he practices?⁴⁸.

The third and fifth observations of Orellano's second paper discussed above undoubtedly provided the grounds for this question. The Valencia College



⁴³ For the case of Valencia see García Ferrandis, 2022; for the city of Barcelona, Zarzoso, 2022.

⁴⁴ Its responsibility for supervising the ethics of its members was set out in article 4 of the statutes. These articles mention regulation of the exercise of the profession in all its aspects, preventing it from contradicting the good principles of professional morals and decorum.

⁴⁵ Dirección General de Sanidad, Sobre provocación del parto, 1902, pp. 37-39.

⁴⁶ Dirección General de Sanidad, Sobre provocación del parto, 1902, pp. 37-38.

⁴⁷ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 42.

⁴⁸ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 38.

of Physicians did not of course acknowledge that a delivery would be induced for «such a trivial reason»49.

- 3. Is it acceptable that in order to arbitrarily accelerate deliveries in pregnancies which have a normal course, the dilation of the cervix is forced with the fingers when it has reached half of its normal dilation, and pains occur physiologically? 50.
- 4. Is it acceptable that despite the absence of a dystocic indication making it necessary, the forceps is applied arbitrarily in the superior strait, when there is a physiological presentation and everything suggests a normal termination?⁵¹.

The answer to these two questions was similar, but the negative response was not so clear. Without siding with Orellano or ruling out the possibility that such practices may have been carried out, the College washed its hands of the subject, explaining that every intervention should always be justified by a medical indication, and not depend on arbitrary decisions made by the obstetrician⁵².

5. Is the assumption that pressure and violent tractions of the head of the foetus, exerted by the prongs of the forceps, are so undoubtedly harmless to the present and future functional integrity of the brain that they can be administered for reasons of mere convenience and arbitrarily?53.

The answer to this question was also not a direct negative, and justification was given for the possibility that the forceps did not cause any kind of harm, depending on the obstetrician's skills and such other mitigating circumstances as the specific characteristics of the mother, the foetus, the instrument used, etc. Nevertheless, the answer once again acknowledged that the forceps should never be used for reasons of convenience or arbitrarily, but as a result of a genuine medical indication⁵⁴.

6. Do manual and instrumental interventions in tocology offer such safe guarantees, are there safeguards in the reactions of the human organism and in the submissive way it reacts to violence against its natural functions, one of which is childbirth, and is there such a perfect knowledge of the laws of nature, that the practitioner believes that he can act harmlessly, depriving the child of days of shelter in the womb, and the mother of adequate preparation for the birth, and subject her, with no serious tocological indications, to etherification, saturation of ergot, administration of chloroform, digital dilation of the cervix and the application of

⁴⁹ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 42.

⁵⁰ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 38.

⁵¹ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 38.

⁵² Dirección General de Sanidad, Sobre provocación del parto, 1902, pp. 42-43.

⁵³ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 38.

⁵⁴ Dirección General de Sanidad, Sobre provocación del parto, 1902, pp. 43-44.

forceps, when the pregnancy is a normal one, and a normal birth is also anticipated?⁵⁵.

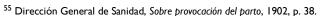
The answer was of course a negative one, and emphasised that it was impossible to predict what the organism's behaviour would be in response to the use of any intervention⁵⁶. Finally, the last question mentioned the possible legal consequences that a tocologist could face if the mother or the baby suffered from an accident as the result of an unnecessary intervention:

7. In the event that as a result of these artificial interventions in the uterus and human nature being forced to perform at the wrong time a procedure that is always respected, and only subject to intervention for serious and very varied reasons, the foetus is asphyxiated, the mother suffers from some puerperal complication, or the child's brain, due to an unnecessary application and pressure of the prongs of the forceps, suffers in its delicate functions, what responsibility would the perpetrator of these actions and propaganda have?⁵⁷.

According to the College of Physicians, if this happened, in addition to the gynaecologist receiving a general reprimand, the matter would be placed in the hands of the courts⁵⁸.

Although the Colleges were responsible for the work requested by the General Directorate of Health, the members of the commission expressed their discomfort in this regard. A spirit of self-interest typical of medical professions led them to include a plea in Orellano's defence at the end of their report. They considered the tocologist's morality to be beyond reproach, and argued that data justifying his interventions must have been absent from the papers. What they did not mention in their report was that prior to their response, they had summoned Orellano to appear at the offices of the College, to give the pertinent explanations to the committee⁵⁹.

Orellano was grievously offended by the summons, in which he viewed his role as one of an «alleged or suspected criminal», and his impulsive nature led him to use the pages of the September issue of *La Medicina Valenciana* to defend his honour⁶⁰. However, rather than a defence, it was an outright attack on Pulido, whom he described as a «model of ineptitude and incompetence to hold the



⁵⁶ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 44.

⁵⁷ Dirección General de Sanidad, Sobre provocación del parto, 1902, pp. 38-39.

⁵⁸ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 45.

⁵⁹ Orellano, Miguel «En defensa propia. Carta abierta dirigida al M. I. Sr. Director General de Sanidad», La Medicina Valenciana, 9, 1901, pp. 279-286.

⁶⁰ Orellano, Miguel «En defensa propia. Carta abierta dirigida al M. I. Sr. Director General de Sanidad», La Medicina Valenciana, 9, 1901, pp. 279-286.

position of General Director of Health». Since some excerpts from his articles had been published in El Siglo Médico, and had been presented as being written by a «highly erudite tocologist», Orellano was implying that Pulido had a double standard which varied depending on whether he was acting as General Director of Health, or as co-owner and editor of the El Siglo Médico:

How is it possible to believe that Dr Pulido, editor of a newspaper that contributes to disseminating some supposedly bad doctrines, says nothing as editor, while protesting in his capacity as General Director of Health? Does the distinguished gentleman have two consciences and two moralities, one large and one small, and use the large one at the General Directorate of Health, and use the small one as it affects his position has co-owner of the journal El Siglo Médico? Is it truly possible and a facet of the distinguished gentleman's character to have an altruistic approach at the General Directorate of Health and another positivist, selfish and pecuniary approach as the editor of El Siglo Médico? No, this cannot be the case. I believe that in order to work at the General Directorate, the least that is required of the fortunate party is common sense, and I am pleased to state that as long as the contrary is not proven, I am willing to believe that the distinguished gentleman has this common sense which is lacking in the author of the official letter that has compromised the distinguished gentleman with its imprudence⁶¹.

Did Orellano genuinely believe that the author of the official letter addressed to the Valencia College of Physicians was another person, or was this a piece of ironic mockery? Whatever the case, insinuating that Pulido signed articles written by others under his own name was in itself a way of offending him. Orellano continued his attack by transcribing a speech which Pulido had given, in which he justified the mistakes that had been made throughout the history of medicine as being inevitable, without which progress in the field would not have been possible:

Receive our applause, and let us all declare together that if Medicine has made any error as a result of its generous enthusiasms, this is absolved by the conquests it has achieved and the goodness of its efforts. Humanity has no path other than error in order to encounter the desired truth; only the gods go directly to the longed-for knowledge of mystery: we mortals have to pay the price imposed by our poor and fallible nature: May God, Humanity and History forgive Medicine for such extravagant errors, and forgive we physicians, because if there were no such forgiveness, alas, from the first moment of our existence we would have been condemned to stillness and despair, and Medicine would not exist!62.

⁶¹ Orellano, Miguel «En defensa propia. Carta abierta dirigida al M. I. Sr. Director General de Sanidad», *La* Medicina Valenciana, 9, 1901, p. 281.

 $^{^{62}}$ The speech was Ángel Pulido's answer at the reception for the gynaecologist Eugenio Gutierrez at the Real

In his conclusion, Orellano offered Pulido the opportunity to withdraw his comments, and acknowledge that he had presented himself as the author of a text written by another author in the pages of *La Medicina Valenciana*, or in any other medical journal.

5. THE ENQUIRY TO THE SPANISH GYNAECOLOGICAL SOCIETY

With the publication of Orellano's protest, the matter began to take on a rather unpleasant tone, and Pulido was forced to continue a process that could otherwise have easily been settled⁶³. The next step was to make a similar enquiry to the *Sociedad Ginecológica Española* [*Spanish Gynaecological Society*], by sending a slightly modified version of the questionnaire discussed above: the first six questions were exactly the same, the seventh question became the ninth and final question, and two new questions were added.

- 7. Can science accept that the physiological reason that determines the induction of normal childbirth has been discovered, with such certainty that the doctor believes he has the right to replace the natural impulse that determines the procedure with strong stimulation by medicines, ether and ergot, with no fear of causing harm due to the use of inappropriate and erroneous stimuli?⁶⁴.
- 8. Given that conclusion 4 of the aforementioned article states that manipulation in the vagina and the uterus can create a risk of infection, can manipulations for dilation and extraction under the terms they are mentioned be accepted as a prudent practice, without any tocological indications that make them advisable and necessary, as in the cases referred to?⁶⁵.

The intention of the General Directorate of Health in writing the questions was clear. It was impossible to provide a definitive answer regarding the highly irregular series of interventions advocated by Orellano in his papers. All the questions were answered with a simple «no», except for the last question, regarding the legal liability of doctors who used these techniques. They explained that all the other questions could lead to civil and criminal liability for the doctor who engaged in them, but they were more concerned with aspects other than the physical safety of the mother and her baby:

From the moment that a delivery can take place at the wishes of the pregnant woman and the obstetrician without justified dystocic causes, what is the legal



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Academia Nacional de Medicina [Royal Academy of Medicine] in Madrid: Orellano, Miguel «En defensa propia. Carta abierta dirigida al M. I. Sr. Director General de Sanidad», La Medicina Valenciana, 9, 1901, pp. 281-282.

⁶³ Dirección General de Sanidad, Sobre provocación del parto, 1902, pp. 63-67.

⁶⁴ Dirección General de Sanidad, Sobre provocación del parto, 1902, pp. 61-62.

⁶⁵ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 62.

term established in the Code for the declaration of paternity in the event of the mother's widowhood? What litigations and wicked dispossessions could occur as a result of these practices? And there is no reason to consider how these practices would encourage professional abortionists, because the mere thought is dreadful66.

However, there was one observation in this last question that should have given Pulido some guidance on how to proceed. It referred to the impossibility of preventing Orellano's method from becoming widespread: «The Spanish gynaecological society is not aware of any legal provisions that may oppose them»67.

6. THE CIRCULAR FROM THE GENERAL DIRECTORATE OF HEALTH

The questionnaire had been sent to the Spanish Gynaecological Society on 14 December 1901, and the response is dated 19 February 1902. The circular «relating to the use of certain procedures in normal deliveries» was published in the Gaceta de Madrid just four days later68. It was subsequently reproduced in the official gazettes of all the provinces in Spain, and in the gazettes of the medical colleges that existed at the time.

The circular reiterated that pregnancy was «a natural state, which also has a natural termination» which had to be respected except in cases of illness or various complications. It deemed the following to be unacceptable:

- 1. Reducing the term of a normal pregnancy without any dystocic or medical indications to justify this measure.
- 2. Forcing dilation of the cervix when this took place physiologically.
- 3. Applying the forceps to the child in cases with normal presentation and delivery.
- 4. Confronting the risks involved in the administration of large doses of chloroform, infections and traumatic manipulations, when all aspects of the mother and the progress of her delivery are normal⁶⁹.

We can assume that the objective of the General Directorate of Health was what we know today as «quaternary prevention», i. e. to prevent medical interventions from producing more harm than good⁷⁰. This harm was even more

⁶⁶ Dirección General de Sanidad, Sobre provocación del parto, 1902, p. 66.

⁶⁷ Dirección General de Sanidad, Sobre provocación del parto, 1902, pp. 66-67.

⁶⁸ Dirección General de Sanidad, «Circular de la Dirección general de Sanidad relativa al empleo de determinados procedimientos en los partos normales», Gaceta de Madrid, 54, 23 de febrero de 1902, pp. 811-812.

⁶⁹ Dirección General de Sanidad, «Circular de la Dirección general de Sanidad relativa al empleo de determinados procedimientos en los partos normales», Gaceta de Madrid, 54, 23 de febrero de 1902, p. 812.

⁷⁰ Gervás, 2006.

controversial if it arose among healthy women, as was the case with most pregnant women:

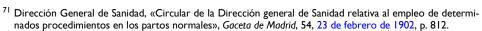
And in view of the fact that if laws and customs authorise the life, honour and interests of citizens to be entrusted to doctors, this is in exchange for practitioners reciprocating this right by seeking to undertake their delicate mission with the greatest possible knowledge and prudence, to always ensure that no harm occurs when it does not exist, and whenever possible, that the misfortunes of human life that have arisen are remedied as much as possible; and no practitioner, however eminent and extraordinary he considers himself to be, is entitled to desecrate the respects [sic] due to the human body, or to compromise his life with recklessness or rash acts that are rejected by general medical conscience, because this would be a breach of the essential mission of Medicine, and special laws regarding medical responsibility would be justified, and would be necessary if the recklessness and fantasies of professional care lacked the necessary restraint⁷¹.

The document condemned and rejected any medication and manipulation to induce a birth in a pregnancy with a normal course «not even one hour earlier than the nature of the woman determines, considering any pregnant woman entirely respectable». With regard to the debate on the use of the concept of «obstetric violence», he pointed out that «violent procedures being carried out on women and the child in cases of normal deliveries is also to be condemned». Those engaging in this type of practice should answer to the «Courts so that any liabilities that may arise may be resolved, particularly if these unnecessary interventions had led to accidents for the mother or the child».

The circular was a clear attack on Orellano's clinical practice. However, at the same time, it attempted not to harm the gynaecologist's professional standing, and justified his actions based on his scientific interest in the progress of obstetrics:

The industriousness, enthusiasm for progress and good faith with which Dr Miguel Orellano has proceeded in his desire to make progress in obstetrics practices is acknowledged, and no judgement is made as regards the accuracy and merit of his inventions and doctrines, as this is the responsibility of science⁷².

Despite the inclusion of this observation in the circular, taking into account how he had previously reacted, it is reasonable to suspect that Orellano felt deeply humiliated. However, the publication of the circular does not appear to



⁷² Dirección General de Sanidad, «Circular de la Dirección general de Sanidad relativa al empleo de determinados procedimientos en los partos normales», Gaceta de Madrid, 54, 23 de febrero de 1902, p. 812.



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have significantly affected his reputation: he continued to have a large clientele, and to receive invitations to give lectures.

Finally, the circular recommended that medical colleges and health authorities combat and pursue «all types of unjustified and reckless interventions in pregnancies and deliveries».

As mentioned above, Miguel Orellano died just one year after the publication of the circular. He died «victim of a cruel ailment» at his property in Cullera (Valencia) on 29 August 190373. According to Adolfo Martínez Cerecedo74, he had died prematurely due to his excessive intellectual work and «as a result of the distress of his constant work in favour of obstetric progress in Spain not having been understood and respected as it deserved»75. After Orellano's death, his successor as editor of Medicina Valenciana was the paediatrician and professor of childhood diseases at the University of Valencia, Ramón Gómez Ferrer (1862-1924)76.

Orellano's procedure for inducing childbirth once again became a source of controversy among specialists a year after the obstetrician's death. In December 1904, Adolfo Martínez Cerecedo published an article in the Revista Ibero-Americana de Ciencias Médicas on two clinical cases of albuminuria gravidarum. In one of them, the author had decided to use the «Spanish procedure» devised by Orellano to induce a premature delivery in a patient with clear symptoms of preeclampsia. The result was the delivery without using forceps of a live girl, born one month prematurely, although the tocologist did not provide an account of her subsequent development. Martínez Cerecedo was a strong advocate of Orellano's induction procedure, and in his paper, he presented his disagreement with the health authorities who had judged his colleague so harshly. However, the circular had only opposed the induction of normal deliveries, and not deliveries which had a medical indication like those presented by Martínez Cerecedo.

His publication clearly sought to create controversy, since the author claimed that Spain was «a backward country in everything related to childbirth», and assured his readers that he in fact considered tocology to be the most backward specialist field in Spain. According to Martínez Cerecedo, the source of the

^{73 «}Necrológica», La Correspondencia de Valencia, 8.900, 30 de agosto de 1903, p. 2.

⁷⁴ Adolfo Martínez Cerecedo (Madrid, 1857-1917), graduated in Medicine from the University of Santiago de Compostela and obtained his doctorate in Medicine from the Central University of Madrid, worked as an obstetrician at the Rubio Institute (Madrid) and was a doctor by competitive examination at the Municipal Charity of Madrid («El Doctor Cerecedo», La Tribuna, 1958, 15 de marzo de 1917, p. 9).

⁷⁵ Martínez Cerecedo, Adolfo, «Dos casos de albuminuria gravídica», Revista ibero-americana de ciencias médicas, 12, 1904, pp. 249-254.

⁷⁶ López Piñero, 1992, p.100.

problem lay in the ideas of the professionals themselves, who prioritised gynaecology over obstetrics:

By virtue of this confusion, gynaecologists are tocologists in their own right; and here is the primary source of backwardness of tocology in our country: because those who practice both specialities generally devote their attention primarily to the study of gynaecology, and therefore neglect obstetrics 77.

Obviously, the scientific community reacted swiftly to these criticisms. Martínez Cerecedo's article and Orellano's method were extensively discussed by other gynaecologists⁷⁸. Sebastian Recasens⁷⁹, for example, disagreed with the opinions of both of his colleagues. He believed that the practice of obstetrics in cities such as Madrid or Barcelona was at the same level as in other European countries. He also disagreed with using ergot because of the risk that it entailed to the life of the foetus, and the possibility that it would cause placenta accreta, which were risks which had already been widely demonstrated by the contemporary scientific evidence available⁸⁰. In the 1925 edition of his work *Tratado* de Obstetricia [Treatise on Obstetrics], Recasens rejected Orellano's technique:

Arellano [sic], in Valencia, proposed artificially inducing labour and the instrumental termination thereof, not only when the indications listed here apply, but also as a means of being able to perform this task on the day and at the time that suits the woman or the tocologist; to do so, he administered an oxytocic and tonic potion two hours before the time at which he had decided to operate, and then engaged in dilation of the cervix, concluded the delivery, after the cervix was dilated, with an application and forceps; this practice was reprimanded by all those who were consulted on the matter, since it made deliveries that should have taken place in a completely physiological manner into abnormal cases. Arellano's [sic] practice has not been followed by any tocologist, and we believe it would extend the indications of premature delivery to limits that it will not reach until we are absolute masters of the treatment of puerperal infections⁸¹.

The text appears to suggest that after Orellano's technique had initially been monitored by some contemporary tocologists, the measures taken by the General Directorate of Health for respecting the physiology of normal deliveries



⁷⁸ Sociedad Ginecológica, «Nuevo procedimiento de parto prematuro artificial», *Revista de Especialidades Médi*cas, 8, 133, 1905, pp. 101-104.



⁷⁹ Sebastián Recasens y Girol (1863-1933) was a Spanish gynaecologist and dean of the Faculty of Medicine at the Central University of Madrid between 1916 and 1933: Miguel Velasco, 2015, p. 40.

⁸⁰ Ruiz-Berdún, 2015.

⁸¹ Recasens Girol, 1925, p. 876.

had been effective in the intervening years. However, this situation only lasted a short time. Paul Delmás (1880-1962), a professor at the Obstetric Clinic of the Faculty of Montpellier, presented his «Method for extemporaneous evacuation of the uterus at the end of pregnancy», also known as the «Fixed-time delivery» in Madrid in 1927⁸². Orellano's chloroform was replaced by spinal anaesthesia and manual dilation was then performed, although in this method, forceps were not always used to extract the foetus. As the years passed, ergot was initially replaced by pituitary extracts, and subsequently by oxytocin⁸³. New medical discoveries led to a proliferation in the appearance of «personal methods» for concluding a pregnancy, with or without a medical indication. For example, in 1959, César Fernández Ruiz, director of the maternity home in Palencia, proposed a method for normal deliveries which was very similar to Orellano's procedure in the prior preparation, in which chloroform was replaced by inhalations of chloroethylene and the forceps by vacuum extraction⁸⁴.

Throughout the 20th century, advances in technology and the institutionalisation of childbirth brought about a radical change in the way births were attended⁸⁵. At the same time, obstetricians, protected by a regime that placed women on a lower level than men, consolidated their power in childbirth and over women's bodies⁸⁶. Indications for the induction of labour gradually increased with the development of obstetrics in the twentieth century, both in Spain and elsewhere. Inductions and caesarean sections due to an elective indication by the doctor or the pregnant woman are today commonplace in some hospitals⁸⁷.

7. DISCUSSION

Reyno Álvarez defends Orellano's position and blames Pulido for abuse of power. In her opinion, Pulido's reaction was due to the fact that he was against the use of chloroform in childbirth. However, the author did not consult the document of the legislative series of the General Directorate of Health, in which, as we have been able to appreciate, it was the entire Orellano method that worried Pulido.

⁸² Delmás, 1928.

⁸³ Ruiz-Berdún, 2015; Nucci, Rodrigues Nakano and Teixeira, 2018.

⁸⁴ Fernández Ruiz, 1959.

⁸⁵ Ruiz-Berdún, 2023; Barceló-Prats, 2021, Casadó i Martin, 2015.

⁸⁶ In this aspect, the pioneering work of Miguel, 1979, is highly recommended.

⁸⁷ Hernández Martínez, Pascual Pedreño, Baño Garnés, Melero Jiménez and Molina Aragón, 2014; Seijmonsbergen-Schemers, Peters, Goodarzi, Bekker, Prins, Stapert, Dahlen, Downe, Franx and de Jonke, 2020.

Furthermore, Pulido's concern came true. In issue 11 of *La Medicina Valenciana*, a follower of Orellano, and advised by him, replicated the method in a sixmonth pregnant woman. The baby didn't survive. Although the author said that she had died before giving birth, the baby would hardly have been able to survive at that gestational age⁸⁸.

CONCLUSIONS

Miguel Orellano's papers highlight the pathological perspective of child-birth that some obstetricians held at the beginning of the twentieth century. He argued that pregnant women were «ill» and his interventions led to better results than letting nature take its course. If Orellano had used his complex system of interventions only on women with pathological pregnancies, his articles would probably not have had as much impact.

The aim of Ángel Pulido, with sufficient experience in the field of gynaecology, was to avoid the undesired effects of the obstetric interventions proposed by Orellano, especially in women with normal pregnancies and deliveries.

After Orellano's technique had initially been monitored by some contemporary tocologists, the measures taken by the General Directorate of Health for respecting the physiology of normal deliveries had been effective in the intervening years. However, this situation only lasted a short time. While some well-known gynaecologists were against this type of intervention, such as Sebastián Recasens, others, both foreigners such as Paul Delmás and Spaniards such as César Fernández Ruiz, modified and popularised labour induction techniques.

Orellano was a pioneer in Spain of «delivery on demand», a practice that became increasingly widespread among obstetricians with a private clientele whom they did not want to risk losing, despite the measures taken by the General Directorate of Health.

Today, history is repeating itself in Spain. Despite the measures taken by the Ministry of Health, Social Services and Equality to encourage normal deliveries, the country still has rates of caesarean sections and episiotomies that are well above the levels recommended by the World Health Organization.

We can therefore conclude that, as history shows us, health authorities have little chance of avoiding over-medicalisation of childbirth with the measures taken so far.



⁸⁸ Porres, Manuel, «Parto provocado por el procedimiento del Dr. Orellano», La Medicina Valenciana, 11, 1901, pp. 347-350.

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