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Pseudoaneurysm with risk of imminent rupture in Jehovah's Witness patient

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Abstract

Emergency surgery for vascular trauma is associated with a high risk of bleeding, which often requires blood transfusions. We present the case of a patient with gunshot injury with pseudoaneurysms of the giant femoral artery with skin dissection and abundant bleeding that required emergency surgery with vascular repair and discharge of the patient without complications. The Jehovah's Witness (JW) patient signed a refusal of blood transfusion in his informed consent. The need for blood transfusion was always present, some legal aspects are reviewed that can help the doctor to protect his therapeutic freedom.

Keywords: *Pseudoaneurysm. Blood transfusion. Jehovah's Witness.*

Introduccion

The Jehovah's Witness (TJ) considers that has references in the Bible that exclude the performance of blood transfusions, red blood cells, plasma and, in the same way, the administration of platelets. On the other hand, he does not exclude the use and administration, if necessary, of albumin, preparations for hemophiliacs (coagulation factor VIII and IX), erythropoietin and immunoglobulins[1,2].

They are the fastest growing religious group in the Western Hemisphere, currently numbering more than eight million. Jehovah's Witnesses prohibit blood transfusion based on the literal interpretation of the Bible (Old Testament; Genesis 9: 3-4; Leviticus 17: 10.16 and Acts 15: 28-29). The potential seriousness of said dogma, which is accepted and maintained by the faithful to that religion with surprising uniformity and extraordinary firmness, is that it has given rise to an intense bioethical debate on the conduct that health professionals must assume when faced with a decision that It can, in some cases, lead to the inexorable death of the patient[3].

To contextualize the dimension of the problem, it is necessary to insist that Jehovah's Witnesses consider it an inadmissible offense against their dignity to be supplied with blood without their consent, to the point of assuming it as an affront that affects their own hopes, desires, expectations and particularly in his desire to live; that is, most believers prefer to die before accepting a transfusion[4].

Case study

A 45-year-old male patient, Jehovah's Witness (JW) with a history of occasional smoking, referred a gunshot wound to the right leg 1 year ago without medical management. One month prior to admission, the patient presented bleeding at the site of the injury, for which he was sutured at the Health Sector Hospital. He was admitted to the emergency department of our hospital due to intense pain and a pulsating mass at the level of the inner

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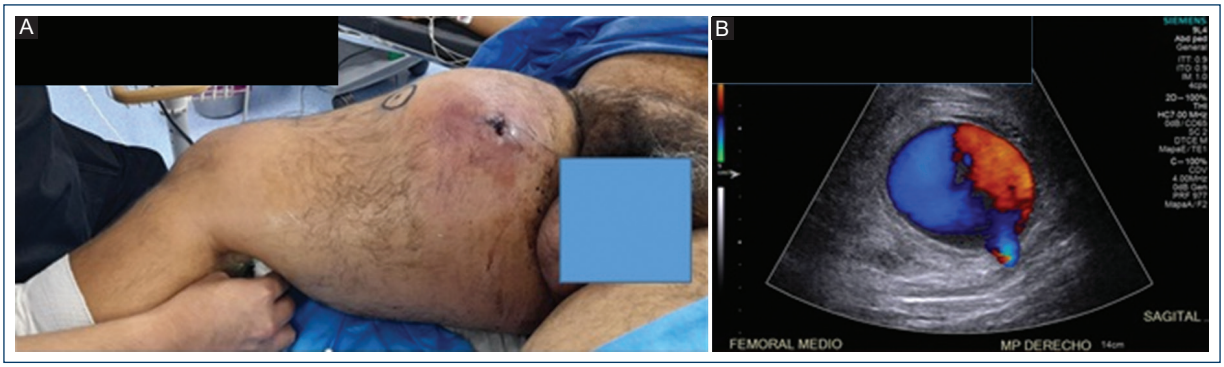

Figure 1. A: pseudoaneurysm of the femoral artery due to a gunshot wound. **B:** color duplex Doppler ultrasound of the femoral pseudoaneurysm.

face of the right thigh measuring 20 x 20 cm, in the course of the femoral artery, skin with erythema and an approximately 2 cm wound with sutures (Fig. 1 A). Ultrasound confirmed a giant pseudoaneurysm of the femoral artery (Fig. 1 B). The patient and relatives did not authorize the informed consent for the blood transfusion. In the operating room under general anesthesia, after applying two ampoules of tranexamic acid, proximal incisions were made on the femoral triangle and distal to a pseudoaneurysm with identification of femoral vessels. After vascular control through decreased pulsatile flow, we extended the incision in search of the wall of the pseudoaneurysm, it was found to have ruptured content, with abundant clots exiting and active venous bleeding (Fig. 2 A). At the site of the femoral artery injury, a venous fistula was observed from which the bleeding originated, so control of the proximal and distal femoral vein was verified up to the site of the injury (Fig. 2 B). After hemostasis, the femoral artery and vein were repaired end-to-end with 15 cm of the saphenous vein of the right leg; The distal pulse and venous return were restored (Fig. 3 A). Hemostasis was verified and the entire sac wall was removed with layered closure and drainage placement. There were no hemodynamic complications, total bleeding was 2000cc, so fluids with crystalloids were administered. Hemoglobin on admission was 13.70 g/dl and after surgery it was 10.70 g/dl. Despite hemodynamic stability, the patient was at imminent risk of transfusion throughout the surgery. The patient is discharged after 2 days with control by the extreme consultation without complications (Fig. 3 B and 3 C).

Discussion

The present case does not intend to resolve such a complex dilemma between the patient's will and the professional conflict of a doctor in the face of the patient's refusal, due to his religious belief, of non-transfusion. This manuscript aims to review the medical literature and analyze the best tools in a situation of demand for transfusion in a Jehovah's Witness patient. When the patient manifestly opposes receiving transfusions of blood components for religious reasons, we are faced with one of the most relevant bioethical dilemmas of today. The dilemma of considering and ignoring life in favor of respect for the autonomy and religious freedom of the person is present[5]. In current medical practice, many problems are related to a distancing of the link between doctors and patients.

At the Clinical Hospital of the University of Chile, a Care Program was created for patients who do not wish to receive a transfusion, which has the voluntary affiliation of professionals from all medical specialties. The objective of this program is to establish strategies, techniques and procedures aimed at optimizing the care of these patients, avoiding subjecting them to unnecessary pressure and having legal support against legal actions[6]. Some hospitals have created strategies to control bleeding in TJ, one of them is based on marked prevention. All patients are treated very aggressively with iron and recombinant erythropoietin until reaching optimal concentrations (hematocrit >36%). The use of antifibrinolytics in cardiac surgery is not widespread, it is reserved for patients who are considered to be at high risk of bleeding, such as those undergoing reintervention, long surgeries and aortic surgery[7]. Preoperative hemoglobin optimization is the first step in patient management. The administration of erythropoietin at least two weeks before surgery has been shown to reduce the rate of transfusion in non-cardiac surgery. It is recognized that antifibrinolytics in cardiac surgery

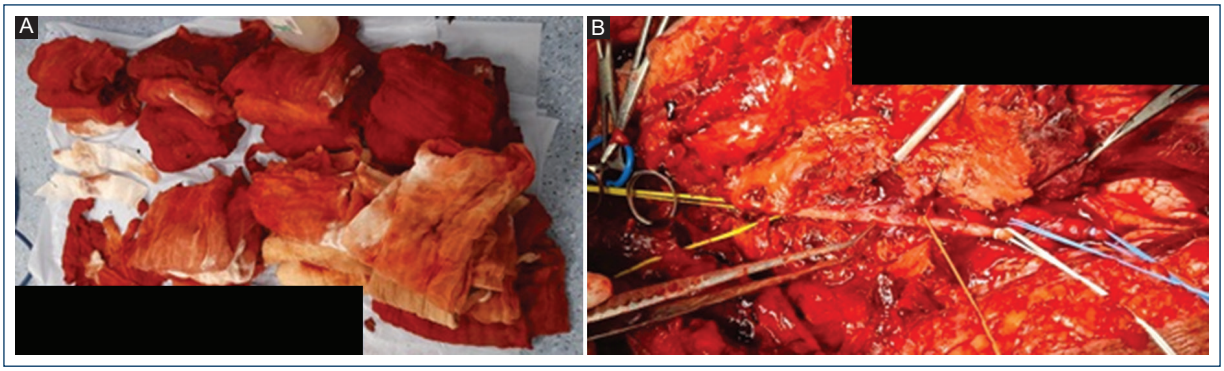

Figure 2. A: outpouring of copious amounts of blood from the pseudoaneurysm site. **B:** vascular control and site of the arteriovenous fistula of the pseudoaneurysm.

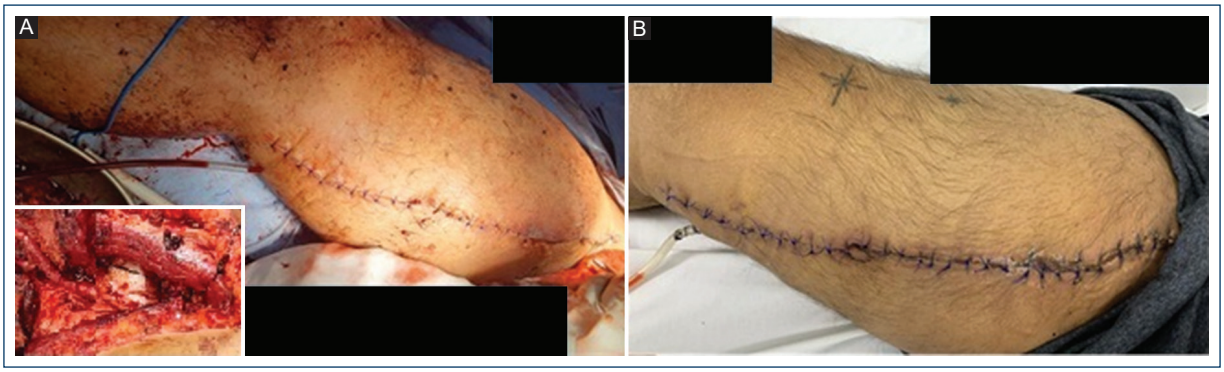

Figure 3. A: vascular repair with end-to-end reverse saphenous vein graft. **B:** immediate post-surgical result. **C:** surgical result one week after the repair of the pseudoaneurysm.

decrease the activity of hemostasis, bleeding and transfusions. Plasma concentrations of tranexamic acid to inhibit fibrinolysis vary from study to study. Cell salvage, normovolume hemodilution (NVH), and ultrafiltration have proven to be important techniques for blood conservation in cardiac surgery[8].

The Advance Trauma Life Support (ATLS) indicates hemorrhage as the most common cause of shock in trauma patients. Today, in its tenth edition, the updated protocol for the initial management of hemorrhage in trauma is the early use of transfusions with blood components, thus avoiding the consequent development of coagulopathy and thrombocytopenia[9]. In the management of hemorrhage, it is known that the religious rejection of blood transfusion by Jehovah's Witnesses reflects negatively on the outcome of these patients when they are victims of trauma, since morbidity and mortality is significantly higher among those with severe anemia (hemoglobin level less than or equal to 7.0 g/dl) who did not accept blood products, compared with patients receiving red blood cell replacement[10].

In stable, symptomatic, outpatient Jehovah's Witness patients with heart failure, impaired left ventricular ejection fraction, and iron deficiency, treatment with iron carboxymaltose for a period of 24 weeks improves symptoms, physical performance, and quality of life, and has acceptable results in profiles of side effects and adverse events. The benefit is seen in patients with anemia and in those with anemia[11].

The English philosopher David Ross in 1930 that the entire doctor-patient relationship must be governed by the moral principles of medical ethics[12], these being autonomy, beneficence, non-maleficence and justice. The principle of autonomy refers to the patient's freedom to accept or reject medical treatment, that is, the ability to govern himself, based on his own system of values and principles. The principles of beneficence and non-maleficence, collected from the Hippocratic Oath, indicate that the doctor must always act seeking

the good of the patient, ensuring their health and happiness. The refusal of a patient to receive a blood transfusion at a time when his life is in danger, makes the doctor face a great ethical dilemma before the duty to safeguard the life of the patient and the duty to respect his religious freedom[13].

In order to establish specific recommendations to try to prevent the aforementioned problems from continuing to occur, a working group was convened with participants from the National Medical Arbitration Commission, the Secretary of Health, the Secretary of the Interior, the Center of Human Rights, of the Mexican Academy of Surgery of the National Bioethics Commission and of the Mexican National Academy of Bioethics, who by consensus issued the following recommendations for the care of Jehovah's Witness (JW) patients. Number 5 describes what the doctor's actions are when faced with the need for blood transfusion in a seriously JW patient. The document mentions that in case of a state of necessity (real urgency), the doctor must preserve life before other legal assets and his prescriptive freedom must be respected. Despite the fact that transfusion in emergency cases in TJ does not seem to have legal implications as it goes against the religious will of the family, several forensic doctors comment that it is a serious problem, which occurs in all places where TJ patients require medical-surgical care. This must be thoroughly studied by all associations, approached by jurists and legislative authorities to find an adequate solution, given that, at least in Mexico, there still does not seem to be one and what there is seems contradictory[14]. When it is necessary to transfuse an incompetent adult patient, because he is not in a position to understand the risk to which he is subjected if he does not receive the blood transfusion (state of unconsciousness, severe hypoxic shock, dementia), and a vital emergency is documented and the transfusion does not allow delay, it must always act for the benefit of the patient. If it is not a vital emergency, it is important to know, if possible, the prior will of the patient through their relatives, prior directive or through the knowledge of the doctor who had previously treated him, respecting the patient's decision in case of refusal.[15] The patient is putting his life in danger by refusing the blood transfusion. The omission of the doctor can cause a wrongful death, concluding that if we carry out a weighting of rights based on the different criteria we could summarize that health and life are necessary for the exercise of another right, in addition to the fact that the legal framework of the associations religious, establishes that nothing that is exercised in the different religions may go against the meaning of the law in force in Mexico, in addition to the fact that the rights that are protected are not freely available to the subject[16].

In accordance with the law, the doctor, in his legal relationship, has rights and obligations with patients, the doctor must respect their autonomy and guarantee the protection of health, as established in Article 4 of the Constitution. The General Health Law obliges health professionals to protect life (articles 2, 23, 32, AE, 2003). Informed consent exempts from responsibility in case of not using a blood transfusion as long as the lack of administration of blood does not cause any harm. On the other hand, if not transfusing blood causes harm to the patient, the health professional is not excluded from civil liability, even if he did so at the express request of the patient. Respecting the autonomy of the patient is a right, but the state of necessity must also be considered by the doctor, it is better to do than not do, because according to our law, the lives of patients must be preserved. Therefore, a good justification in the clinical file will help with the legal interpretation to know if it acted according to the *lex artis*[17].

The health professional is not excluded from civil liability, even if he has done so at the express request of the patient. The doctor must offer care that protects the life of the patient, if this is not fully complied with, it can cause a possible manslaughter (articles 288 and 303 of the Federal Penal Code), even in the face of the refusal to receive the transfusion by the Jehovah's Witness stemming from their religious upbringing. Since it is a priority to protect the legally protected good such as life over the religious beliefs of the patient. In the Federal Penal Code, the state of necessity is embodied in article 15 Section V and is defined as: acting for the need to safeguard one's own or another's legal interest, from a real, current or imminent danger, not caused intentionally by the agent, injured another asset of lesser or equal value than the safeguarded, provided that the danger is not avoidable by other means and the agent does not have the legal duty to face it[18]. The protection of freedom comes shortly after life, because it is as important as life and because it defines a state of spirituality without which man would not live fully. Autonomy is nothing more than "the naked expression of freedom". It is believed that this autonomy should be exercised in its entirety, without prejudice to the rights of third parties, including authorizing the individual to refrain from receiving the medical care they need for reasons of religious belief. Doctors, upon graduation, swear to exercise the profession as a priesthood: with selflessness, with generosity, just as

Hippocrates, father of Medicine, would do. In addition, in said act they assume the duty to protect, until the last consequences, the health and life, not only of their patients but of any person with whom they have contact.

Conscientious objection can be defined, according to widespread opinion in the doctrine, as the subjective right that aims to achieve the waiver of a legal duty or the extension of responsibility when the breach of this duty has been consummated. This implies the objection, therefore, the breach of a legal duty with active or omissive conduct, against obligations of a personal or real nature, in any case for a reason of conscience. For conscientious objection, the reasons must be exclusively ethical or moral, based on the autonomy of individual conscience. In the case of blood transfusions or the need to follow a certain treatment, it would be necessary to weigh the interests at stake, although the right to life and health of people is a fundamental right, which can be valued more important than the objection of conscience[19]. The Geneva Declaration establishes that the doctor must "ensure with the utmost respect for human life from its beginning, even under threat, and not use their medical knowledge to contravene human laws", likewise, the International Code of Medical Ethics stipulates that "the doctor must, in all types of medical practice, provide a competent medical service, with full technical and moral independence, with compassion and respect for human dignity, and always with the obligation to preserve human life". Although these postulates clearly establish the doctor's right to conscientious objection, they guide him not to carry out acts against life, health and human dignity, even when requested by the patient himself, or as a result of pressure or threat[20].

Until there is a specific legal provision or express jurisprudential pronouncement on the matter, doctors in our country must adopt the following care protocol for said patients:

1. When the devotee is of legal age and is conscious, the doctors must be warned that if he does not receive the blood transfusion the chances of dying are high, that there is no effective alternative treatment and, even so, he refuses to receive a transfusion: Respect the patient's wishes and take all possible precautions and measures to save the patient's life, without transfusing them. This is due to the fact that the principles of non-maleficence and beneficence, as well as the medical values established in the Hippocratic Oath, must be applied from the priority scale of the Jehovah's Witness patient, for whom it is more burdensome to live once transfused than to die, without having received the blood transfusion, as this could truncate their life project (access to paradise), on the assumption that for the State or for the doctor their life is more important than their beliefs, since it is a personalized decision.
2. When the Jehovah's Witness is of legal age, is unconscious and, according to the doctors, needs to receive a transfusion in view of the imminent danger of death: Proceed in accordance with article 27 of the Regulations of the General Health Law on Disposal of Organs and Tissues of Human Beings. If there is no time to investigate the information referred to in said precept, it will be presumed that the patient accepts the treatment indicated by the doctors, just as if he did so expressly (ethical principle of beneficence), therefore, the treating physicians must carry out transfusions without delay and record them in the medical record.
3. When the believer is of legal age, he is unconscious, he needs to receive a blood transfusion due to the imminent risk of losing his life, but he has a blood refusal card and exoneration of legal responsibility derived from said refusal. If the card is written without ambiguity, is recent, has the signature of two witnesses, the patient's signature coincides with one of his official identifications and anticipates the hypothesis in which he prefers to lose his life than receive the transfusion, his wishes must be respected. If there is doubt on the part of the medical personnel about the authenticity or scope of the document and there is time to proceed in accordance with article 27 of the Regulations of the General Health Law on the Disposal of Organs and Tissues of Human Beings, the transfusion must be carried out and record in the medical record[21].

Conclusion

We present the case of a TJ patient with a major vascular injury that compromised his life, who despite all the alternatives to avoid transfusion (due to the precise indication of the family not to accept the transfusion) at some point blood transfusion could become essential. Jehovah's Witness beliefs serve as the basis for a moral system, a set of ethical judgments about what to do or not do. According to this system, the rejection of the transfusion constitutes a rule of conduct to be observed, even if society ignores or underestimates it. If there is a risk of death, the border of the autonomy of the patient's will ends and the autonomy of the doctor's duty to act begins. In the care of a

Jehovah's Witness patient in hemorrhagic shock; for example, the doctor must fulfill his duty to save lives and transfuse blood, but may not fulfill the desire to save life. The will of the patient is not enough to dissipate the observance of this duty by the doctor in case of danger of death.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethical disclosures

Protection of people and animals. The authors declare that no experiments have been performed on humans or animals for this research.

Data confidentiality. The authors declare that no patient data appear in this article.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

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