

ORGAN TRANSPLANTATION: IS SCIENCE DRIVEN BY SPECTACULARIZATION OF MEDICINE?

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The beginning of organs transplantation history is fixed, traditionally, in the third century A.D., when the Saints Cosma and Damian transplanted their churchmen's rotten leg with a black Ethiopian's, deceased soon before.

Far away from miracles or legends, the scientific history of organs transplantation began in 1902, when Sir Alex Carrel, a French surgeon performed for the first time an end to end vessel anastomosis, in Chicago, a fundamental step to go through a possible organ transplantation; after that, heart and kidney's transplantation were performed on animals with various results. Next step was in the 40's, during World War II, when Peter Medawar, transplanting skin on badly burned soldiers in London, understood that the rejection wasn't due only to surgical and technical mistakes but, mostly, to the immune response: without biological compatibility between donor and host the transplanted organ would undergo failure. Many attempts performed in the first half of the 20th century led to the first kidney transplantation on a homozygote male twin by Murray, in Boston, on December 23th 1954. After that operation, many surgeons all around the globe obtained good results improving Murray's technique and, at the same time, began kidney harvesting from cadavers for transplantations; moreover, we needed to wait until 1968 for the first norms on cerebral death, published in the Journal of the American Medical Association. In 1963, in Denver, Colorado, Thomas Starzl performed the first liver transplantation on a 3 years old child and, in the same year, Professor J. D. Hardy transplanted a lung. Three years later Professor Lillehei transplanted

a pancreas and in 1967, in Cape Town, South Africa, Christian Barnard successfully performed the first, well known, heart transplantation.

These successes spread these operations all over the world creating big hopes and increasing the public opinion's interest even if the fundamental problem wasn't absolutely solved: the rejection. In this way, the discovery and the clinical use of immunosuppressive drugs, like cyclosporine and derivatives, have radically changed the conception of immunological control in organ transplantation; drug diffusion was the angle stone of transplantation architecture and radically improved the outcome of these surgical techniques, so that in many hospitals transplantation could be better performed.

The real problems, up to now, have been the collateral effects that chronic antirejection therapy causes, and the right evaluation of risks and benefits. That is even more evident nowadays with the composite tissue transplantation development, which is notoriously more immunologically complex and, maybe too fast spreading.

I believe that every day is an important one for the history of medicine, which is the history of mankind: in big and small hospitals, in every part of the world, so far away from politics and rumors, young or experienced, popular or unknown doctors, with their job give smiles to people bettering their community's life conditions and hopes. Still, there are days that radically change history, often for the importance of the event or discovery and sometimes for the media resonance that medicine gets in these circumstances. One of these days was, September 23rd 1998 when, in Lyon, an international team, lead by Professor Du Bernard performed the first hand transplantation from a cadaver to a dominant right hand amputated Australian man. The public opinion massively followed the event: the favorable and the opponents, the waiting and the fascinated, the astonished and the incredulous, scientists and journalists, dancers, philosophers and politicians expressed their personal opinions, all

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effective, each disputable, just like this editorial which is forced to be a brief summary of long medical, ethical, religious and personal meditations, face to face with an operation that could trace a path for new ars medica's goals. From that day on, 19 other similar operations have been performed worldwide.

Being present at three of those operations and actively participating in one I have notice that, despite of the big means and people, fundamental in order to achieve a good result in this kind of treatment, hand transplantation is, paradoxically, easier from a surgical point of view than a reimplantation since it has been possible to analyze every anatomical, psychological and pathological aspects of the recipient and the donor and each anatomical structure absent in the first one are taken from the cadaver. I think that the real problems in this kind of operation are: the organization of a multidisciplinary team that must cooperate in following the patient for years, the patient's compliance with a drug cocktail created for the purpose of avoiding rejection and the complications of a therapy for a transplantation that does not save life but betters its quality.

Tacrolimus, micophenolate acid, steroids, monoclonal antibodies, dextrane, aspirin, fluconazole, acyclovir, itriconazole, trimetoprim sulphametoxazole, folate, penicilline G, ceftixozime, insulin and topical products and lotions to quote just a few of the drugs that patients need to assume for short periods of their lives or chronically; moreover we have to consider some possible complications they have to face in order to have a new hand as: diabetes mellitus, chronic renal failure, oral candidiasys, venous thrombosis, nosocomial infections and antiaesthetic wounds. Obviously those patients have been widely informed about all the therapies and the collateral effects and psychologists, psychiatrists, lawyers and forensic doctors have decided that such patients have

understood the informed consent.

At the end this editorial wants to ask some questions:

- Is it clear to people who, in front of the terrific prospective of getting their physical integrity back, that transplantation is a hard and long process that transformes them into people depending on hospitals for the rest of their lifetime?

- Why Clint Hallam, the man who chose to get his hand reamputated has been rebounded in so many clinics before getting back, as surgeons said, his preoperatory healthy situation? The mistake of the choice of a psychologically wrong candidate was admitted, but could medicine foresee the changes that such an operation would bring in that patient?

- Is medicine pushing too far with consideration, not always so ethical, on certain composite tissue transplantation that transformed, as I think, people in a forge of transplantable and replaceable tissues?

- Pioneers, in every field, have been praised and looked at with suspicion but, is it the historical time to propose an operation for which the surgical technique overcomes chemistry of drugs that, unfortunately, nowadays provoke so many risks in spite of clear benefits?

- If it took 15 centuries to go from Cosma and Damian's myth to the first surgical transplantation would it be good to wait the same amount of time for an announced anti-rejection DNA recombinant vaccine?

I hope that biomedical engineering is quicker than surgeons and, apart from drugs, will be able to recreate in the best possible way a hand, our very social organ.

We are waiting for face transplantation; some teams call themselves ready, just like the ever-present journalists, judges of some successfull people but do patients really know all they should about an operation which can, in every way, twist their lives?