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RESEARCH ARTICLE

MEDICO-LEGAL ASPECTS OF THE REVISION OF TOTAL HIP ARTHROPLASTY

[1,*]El Hadji Oumar Ndoye, [1]Sidy Ahmet Dia, [1]Agbobli, Y. A., [2]Serigne M. Badiane, [1]Mame Coumba Fall, [1]Mohamadou M Soumah, [1]Mor Ndiaye and [1]Mamadou Lamine Sow

[1]Faculty of Medicine Pharmaceutics and Odonto Stomatology, UCAD, Po Box: 22254 Dakar-Ponty, Senegal
[2]Faculty of Health Sciences, University Gaston Berger of Saint-Louis

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ABSTRACT

Total hip arthroplasty always implies short or long term complications. It is compulsory further to a first initial arthroplasty. In Senegal, after a rather shy beginning in 1970 and1974, the total hip prostheses are regularly made in many hospitals of the country; particularly in Dakar. This review, 40 years later combined with the occurrence of complications are the main reasons why we conduct this retrospective study to highlight the medico-legal implications of the revisions of total hip arthroplasty. This is a retrospective study based on folders from ill persons gathered between January 2000 and December 2010 in the Department of Orthopeadics-Traumatology of the Public Health Institution Aristide Le Dantec in Dakar. The record of these elements has been made for each patient, on the basis of a file including the epidemiological data relative to the revision (indication, the action and the results). All in all 14 folders were selected. The analysis of our results on the functional and anatomic level has allowed us show the different complications further to the revision of a total hip arthroplasty that can incur the liability of the orthopaedist surgeon. The risk of incurring one's professional liability would necessarily help to strengthen the vigilance of practitioners and better warn the government on its responsibility towards public health institutions.

INTRODUCTION

The revision of total hip arthroplasty is the result of a failure namely the occurrence of an early or delayed complication. It can be defined as any intervention that is necessary further to the first implantation. Indeed, the surgery of the revision of total hip arthroplasty has more chance to lead complications than the very first arthroplasty. The complications can be postoperative or even occur during the operation. In Senegal the first total hip arthroplasty have been performed by Professors Rene LOUIS and Idrissa POUYE between 1970 and 1974. They continued in the 1980s with a Belgian team led by Professor Paul BLAIMONT. From 1983, Professors Seydina I. L. SEYE and El Hadj I. DIOP's team made a set of total hip arthroplasty with a first publication in 1984 (Diop *et al*., 1984). Thanks to the opening of the Centre of Traumatology and Orthopaedics (CTO) in 1989, the number of patients increased as well the performance of total hip arthroplasty became more frequent. Thus, nowadays total hip arthroplasty are very often performed in many hospitals of the country, mainly in Dakar. The review of performances 40 years later combined with the occurrence of complications are the main reasons of this retrospective study which will allow us analyse the revisions and identify theirmedico-legal aspects.

Corresponding author: El Hadji Oumar Ndoye
Faculty of Medicine Pharmaceutics and Odonto Stomatology, UCAD
Po Box: 22254 Dakar-Ponty, Senegal

MATERIALS AND METHODS

Our study has been conducted at the Department of Orthopaedics and Traumatology of the Public Health Centre Aristide Le Dantec of Dakar. This is a retrospective study based on the folders of ill persons recorded from January 2000 to December 2010. It includes all the patients on whom total hip arthroplasty were performed in this department during this period. The criteria of exclusion lied on:

- Patients whose folders did not mention any complications requiring a reoperation
- The revisions of total hip arthroplasty have not been made in the Department;
- Patients who died or lost sight of.

A total of fourteen (14) cases were selected.

The collection of the elements was performed for each patient, based on a file that included epidemiological data and revision data (indication, action and results):

- **Epidemiological data** were consistent with the age, sex, aetiology of the primary implantation and the consequences of this intervention.

- **Revisions data** included the period between the initial diagnosis and the arthroplasty failure, the cause of the revision, the period between the initial arthroplasty and the revision, the type of procedure and the postoperative consequences, a functional assessment of the revision based on the Postel Merle D' Aubigné (PMA) score; and an anatomic assessment of the revision in accordance with the radiographic criteria of total hip arthroplasty implantation.

RESULTS

The evaluation involved 14 patients with anatomic and functional complications.

At the anatomic level

We noted: 1 case of cotyla loosening associated with a femoral fracture , 2 cases of instability requiring bloody reduction and 1 case of explantation due to infection.

At the functional level

The assessment was based on the Postel Merle d' Aubigné (PMA) clinical score (7):

During the preoperative period, we recorded seven (7) mediocre results, four (4) bad results and three (3) passable results.

During the postoperative period: during the last review of 14 total hip arthroplasty, we noted seven (7) good results, five (5) bad results and two (2) passable results.

The revision has allowed a moderate improvement of the Aubigné - Postel Merle score. Pain, mobility and stability were significantly improved after the revision. This is illustrated in the figure below:

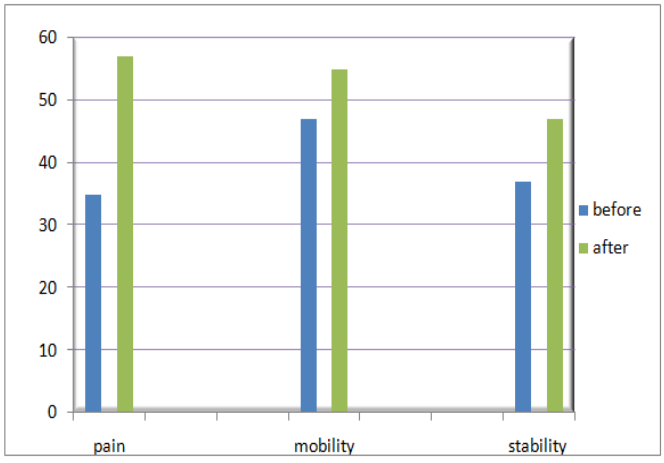

Figure 1. PMA Score before the intervention and during the review

DISCUSSION

The revision of total hip arthroplasty is always required after the primary implantation. It can either give satisfactory results or bad results involving various legal aspects.

Analysis of good results

We obtained seven (7) good, three (3) bad and two (2) passable results. Clinical results during the last review are very satisfactory both at the mobility and pain levels. By comparing the preoperative and postoperative PMA scores, we notice an overall improvement proving the benefit of the revision of total hip arthroplasty. Pain is the most improved criterion followed by the mobility and the stability. Several authors have confirmed these findings (Paterno *et al*., 1997), (Sarr, 2011) (Vives, 1989). About this situation, the expertise lies on the analysis of the positions of prejudice. The duration of temporary disability is usually of ninety (9O days). The consolidation can be done within a period of six (6) months.

Healing, which is the return to the initial state without after-effects, is not possible in this type of intervention since a hip arthroplasty will probably be revised. We must think about preparing the most suitable context for this reoperation. Based on the common law scale, the partial permanent disability (PPD) for a total hip arthroplasty according to the functional result is between 12% and 18%; it is substantially higher for the revision. Moreover, the suffering undergone due to the failure of the first total hip arthroplasty, the revision, the length of the stay in the hospital, and the re-education sessions, can be rated at five (5) on a scale from zero (0) up to seven (7). Aesthetic prejudice can be between one and three out of seven (1 and 3/7) depending on the appreciation of some non aesthetic features: lameness, shortening of a limb and the number of scars. However, other factors can be considered namely the age, gender and the occupation of the patient (Flasaquier, 1996). However, the changing of the arthroplasty of the revision is always to be expected in a period of ten (10) to (15) years maximum.

Analysis of the bad results

In addition to the involvement of the medical responsibility of the surgeon, a bad result increases the duration of the total disability, of permanent partial disability, but also of the patrimonial and extra-patrimonial prejudices. The expertise of the failure of the revision of total hip arthroplasty is more difficult. Indeed, the expert must initially identify the complication(s) that occurred during the review of the revision and establish a direct and accurate relationship of the complications with the surgical action. He must assess the damage and analyze the professional responsibility of the surgeon. It should be noted that our cases of complications have not been subject to prosecution or friendly settlement. Several factors explain this situation: the belief in fatality, ignorance of the victims, and the strong solidarity within the medical profession for clearing colleagues, the high cost and slow pace of judicial proceedings. Both functional and anatomical results of the revision are less good than those of the primary arthroplasty. These results were confirmed by the

work of Michel Postel (1985). It is up to the surgeon to inform the patients about the risks both in terms of complications and on the quality of expected results. This omission constitutes a fault for the surgeon. The decision of the revision should only be made further to a risk -benefit analysis with the patient, for fear of legal troubles. The patient must be warned about the quality of postoperative outcomes, and must accept the risk of keeping permanent after-effects, wrote Otto *et al*. (1982). When the revision usually relieves the pain, when it can improve the mobility, very often, the hip is unstable (Vives, 1989). Two cases of instability were noted in our study, i.e. a rate of 17%. This rate looks lower than the one reported in the major Australian records: 27.6% (Australian Register, 2010), New Zealand: 30.6% (Register New Zealander, 2013). This instability is often grouped with technical errors (the defaults of orientation, shortening, retroversion of the stem). Besides, the absence of the prevention of a luxation and adequate postoperative control can lead to a cause of medical liability.
In our series, the unsealing of the acetabulum associated with a fracture was found. Which is a very satisfactory result given the conditions of revision and the lack of revision implants. The biggest problem remains the failure of the implant, its unsealing.

Peter Vives (1989) summarized that the «aseptic unsealing is the most worrying scalable problem of an arthroplasty; in the long term we may even suggest that a mechanical failure is inevitable and sooner or later it leads to a revision" .The links of this fracture with the unsealing and osteolysis seem obvious and confirmed by Lindahl (2005); but it may just be an osteoporosis or drops of a delicate subject, which could explain the higher incidence of periprosthetic fractures of subjects with implanted arthroplasty due to a fracture. Therefore, the unsealing of an implant is only abnormal if it occurs prematurely. Besides, an infection is the evidence of a failure. The only way to treat it is the removal of the material. It is the first risk while performing arthroplasty (Postel, 1985). The infection often poses many problems: prolonged hospitalization, multiple re-interventions, increased financial costs for patients. Indeed, the surgeon who operates his patient must make all the efforts to comply with the maximum aseptic conditions. It is a deontological obligation. In case of infection, the expert must seek an aseptic fault of the surgeon or of the institution. The French law of March 4th, 2002 states that "institutions are responsible for the damages of nosocomial infections unless they bring the proof of an unrelated cause (Official Journal of the French Republic, 2002)." But doctors are responsible for mistakes, for clumsiness or negligence. Infection is the main complication of hip arthroplasty; its prognosis is functional or even vital.

Conclusion

Every surgical action carries a risk; the revisions of total hip arthroplasty are not an exception to this rule despite advanced medical technology. The belief in fate does not prevent humans from being responsible for their actions. Facing the changing attitudes of our patients, it appears that the representation of fatality or predestination is no longer a barrier to the involvement of the medical liability of practitioners or public health institutions. Without diving into the extreme of an unwholesome legalism that eventually makes medicine more and more inaccessible in developed countries due to the impact of the exorbitant costs of liability insurance, we need to encourage the involvement of medical responsibility in our country. Beyond the legitimate requirement of compensation for damage caused to the victims, the risk of seeing one's liability being incurred would certainly contribute to higher the vigilance of practitioners and; besides, would draw more strongly the State's attention over its responsibilities in relation to public health institutions.

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