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Original article

Outpatient surgery feasibility in anterior cruciate ligament reconstruction: A prospective comparative assessment

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ABSTRACT

Introduction: The main objective of this study was to assess the feasibility of outpatient surgery in anterior cruciate ligament (ACL) reconstruction. We hypothesized that if the patient underwent the procedure within a dedicated organization, safety would be ensured.
Patients and methods: A non-randomized, prospective, comparative, single-operator study conducted in 2012–2013 included all patients undergoing first-line surgery for ACL arthroscopic reconstruction using a short hamstring graft. The outpatient group (OP) included patients who were eligible for outpatient surgery and provided consent; the conventional hospitalization group (CH) comprised those patients not suitable for outpatient surgery and those who refused it. The main evaluation criterion was failure of the admission modality defined as hospitalization of a patient who had undergone outpatient surgery or rehospitalization in the first week after discharge. The secondary evaluation criteria were the rate of postoperative complications, postoperative pain, use of analgesics, and patient satisfaction. A total of 138 patients were included: 71 in the OP group and 67 in the CH group, with a mean age of 29.6 ± 9 years. Twenty-nine percent of the patients refused outpatient surgery. In the CH group, the mean hospital stay lasted 2.7 ± 0.8 days.
Results: One patient in the OP group was hospitalized with localized bleeding and there were no rehospitalizations. Six early postoperative complications were noted in each group. The mean postoperative pain on D0–D4 and patient satisfaction were similar in the two groups.
Conclusion: This prospective study encountered no serious events after outpatient ACL reconstruction surgery. In a selected population, the risks are comparable to those in conventional hospitalization.
Level of evidence: Level III, comparative study.

1. Introduction

The Public Health Code defines outpatient surgery as an alternative to hospitalization that allows the patient to be discharged on the same day as admission, after an identical surgical procedure as conventional hospitalization. The expected benefits for patients concern satisfaction and limited exposure to nosocomial infections [1], for healthcare institutions the optimization of technical platforms, and for health insurance entities a reduction in direct costs ranging from −25%[2] to −68% [3]. In 2009, 83% of surgical procedures in the United States, 79% in Great Britain, and 70% in northern European countries were performed in the outpatient setting versus only 36.2% in France [1].

In France between 2009 and 2010, outpatient surgery in orthopedics increased by + 3%. In 2009, the proportion of day-case surgery was 71.8% for knee arthroscopy excluding ligament reconstruction[4].

In 2012, 41,122 anterior cruciate ligament (ACL) reconstructions were performed in France [5]. The median hospital stay of this diagnosis-related group (08C34) was 3–5.5 days depending on the level of gravity. A recent study showed the feasibility of a short 1-day hospital stay [6]. Patients experiencing short-stay hospitalization were significantly more satisfied and had less pain than those undergoing conventional hospitalization.

The main objective of this study was to assess the feasibility of outpatient surgery in ACL reconstruction. We hypothesized that if the patient underwent the procedure within a dedicated organization, ranging from the intention to undergo

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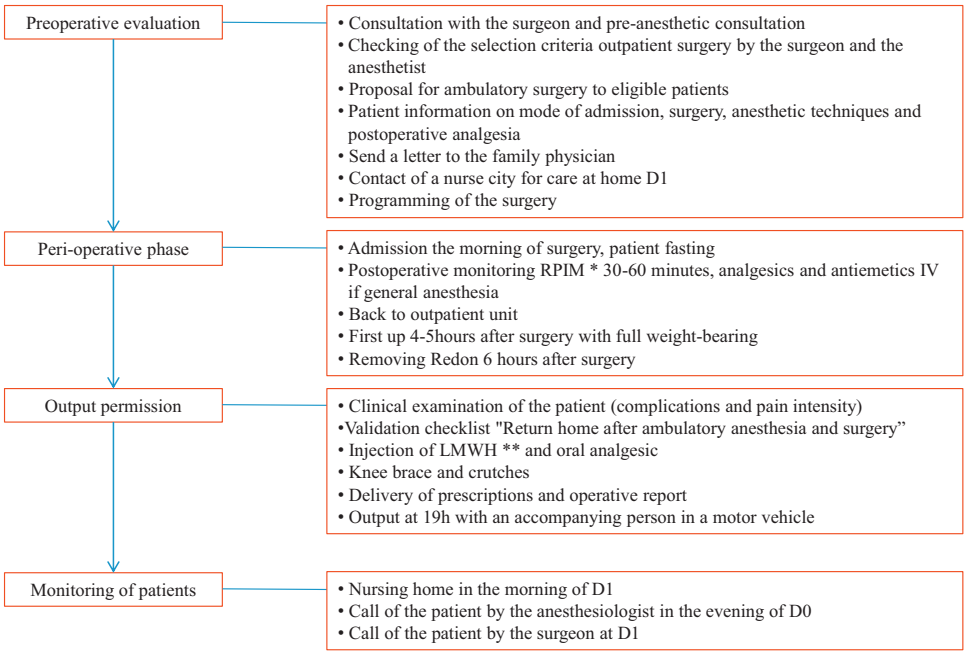

Fig. 1. Clinical pathway for patients undergoing outpatient surgery.

surgery to early postoperative follow-up, safety would be ensured.

2. Material and methods

A prospective comparative non-randomized study was conducted from September 2012 to July 2013. An institutional review board gave its approval, informed consent was collected from the patients, and the database was declared at the National Commission for Data Protection (Commission nationale de l'informatique et des libertés, CNIL).

2.1. Inclusion and exclusion criteria

This study included a consecutive series of patients:

- presenting an isolated ACL tear;
- who were undergoing their first ACL arthroscopic reconstruction;
- performed by a single surgeon;
- using a single surgical technique: short hamstring grafting.

The exclusion criteria for outpatient surgery were:

- age over 60 years;
- ASA score of 3 and 4;
- patients who could not be managed in an outpatient setting such as those living far from the center and those with psychiatric conditions;
- medical cause warranting hospitalization (a history of phlebitis or septicemia, hemostasis problems, and neurological conditions).

Two groups were formed: an outpatient group (OP) including patients who were eligible for outpatient surgery and who had given their consent and a conventional hospitalization (CH) group including all patients who could not undergo day-case surgery and those who had refused.

2.2. Patients' clinical pathway

2.2.1. Before surgery

All the exclusion criteria for outpatient surgery were verified by the study's surgeon and then the anesthesiologist during the preoperative consultations (Fig. 1). During the preoperative consultation with the surgeon, after the patient had been informed of how the surgery would take place and the expected results, both hospitalization modalities were proposed to the patients who were eligible for outpatient surgery: either conventional hospitalization lasting 2–3 days or outpatient surgery with discharge the evening of the procedure. If the patient accepted the outpatient surgery, the family physician was informed by mail. The patient was then scheduled for the surgery and an appointment was made with a visiting nurse for the home care the day after the intervention. The preoperative consultation with the anesthesiologist was as usual, including assessment of the risk of bleeding, screening for a risk of abnormal infection, the choice of antibiotic, and assessment of the postoperative risk of venous thromboembolism so as to adjust thromboprophylaxis. Particular attention was paid to the information provided to the patient concerning the different anesthesia techniques as well as the multimodal postoperative analgesia.

The patients in the OP group arrived at 7:30 am on an empty stomach and were operated on before noon. The CH patients arrived the day before or the morning of the surgery.

2.2.2. Surgical technique

This arthroscopic surgery followed the TLS® technique (FH Orthopedics, Mulhouse, France) [7], with systematic drainage.