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Guidelines

Reporting and Grading of Complications After Urologic Surgical Procedures: An ad hoc EAU Guidelines Panel Assessment and Recommendations

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Abstract

Context: The incidence of postoperative complications is still the most frequently used surrogate marker of quality in surgery, but no standard guidelines or criteria exist for reporting surgical complications in the area of urology.
Objective: To review the available reporting systems used for urologic surgical complications, to establish a possible change in attitude towards reporting of complications using standardised systems, to assess systematically the Clavien-Dindo system when used for the reporting of complications related to urologic surgical procedures, to identify shortcomings in reporting complications, and to propose recommendations for the development and implementation of future reporting systems that are focused on patient-centred outcomes.
Evidence acquisition: Standardised systems for reporting and classification of surgical complications were identified through a systematic review of the literature. To establish a possible change in attitude towards reporting of complications related to urologic procedures, we performed a systematic literature search of all papers reporting complications after urologic surgery published in *European Urology*, *Journal of Urology*, *Urology*, *BJU International*, and *World Journal of Urology* in 1999–2000 and 2009–2010. Data identification for the systematic assessment of the Clavien-Dindo system currently used for the reporting of complications related to urologic surgical interventions involved a Medline/Embase search and the search engines of individual urologic journals and publishers using *Clavien, urology,* and *complications* as keywords. All selected papers were full-text retrieved and assessed; analysis was done based on structured forms.
Evidence synthesis: The systematic review of the literature for standardised systems used for reporting and classification of surgical complications revealed five such systems. As far as the attitude of urologists towards reporting of complications, a shift could be seen in the number of studies using most of the Martin criteria, as well as in the number of studies using either standardised criteria or the Clavien-Dindo system. The latter system was not properly used in 72 papers (35.3%).
Conclusions: Uniformed reporting of complications after urologic procedures will aid all those involved in patient care and scientific publishing (authors, reviewers, and editors). It will also contribute to the improvement of the scientific quality of papers published in the field of urologic surgery. When reporting the outcomes of urologic procedures, the committee proposes a series of quality criteria.

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1. Introduction

Evidence of variations in clinical practice, together with rising costs associated with constrained resources in most health care systems over the past decade, has triggered growing interest in evaluating the quality of our surgical work [1–3]. At present, the main methods of assessing surgical results for audit and quality assurance remain mortality and morbidity [4–6]. Thus measurement of morbidity requires an accurate definition of a surgical complication. Although the incidence of postoperative complications is still the most frequently used surrogate marker of quality in surgery [1,3,7], the direct cause-and-effect relationship between surgery and complications is often difficult to assess. This uncertainty carries a risk of underreporting surgical complications, with substantial consequences.

Most published articles focus only on positive outcomes (eg, trifecta in prostate cancer after radical prostatectomy) [8]. There is a need to compare complications for each specific approach in a systematic, objective, and reproducible way. As yet, no definitions for complications or guidelines for reporting surgical outcomes have been universally accepted. Reporting and grading of complications in a structured fashion is only one aspect of the quality of outcome reporting. In 2002, Martin et al. proposed 10 criteria that should be met when reporting complications following surgery [9] (Table 1). Clavien and Dindo proposed a system for grading the severity of postoperative complications [10] that was subsequently revised and validated [11] (Table 2).

Despite these proposals, no current standard guidelines or criteria exist for reporting surgical complications in the area of urology. It appears important that the urologic community create universally accepted criteria for reporting surgical morbidity and outcomes to establish the efficacy of surgical techniques and improve the quality of patient care [12]. Adopting an integrated method of characterising and reporting surgical morbidity has the potential to improve patient care on many levels:

- It enables better characterisation of surgical morbidity associated with various surgical techniques.
- It allows comparison of different surgical techniques, which is important due to the relative lack ($\leq$1%) of randomised trials in the urologic literature.
- It allows the physician to portray more accurately to patients the risks of a procedure versus other surgical or medical options.

Table 1 – Martin et al. criteria of accurate and comprehensive reporting of surgical complications [9]

Criteria	Requirement
Method of accruing data defined	Prospective or retrospective accrual of data are indicated
Duration of follow-up indicated	Report clarifies the time period of postoperative accrual of complications such as 30 d or same hospitalisation
Outpatient information included	Study indicates that complications first identified following discharge are included in the analysis
Definition of complications provided	Article defines at least one complication with specific inclusion criteria
Mortality rate and causes of death listed	The number of patients who died in the postoperative period of study are recorded together with cause of death
Morbidity rate and total complications indicated	The number of patients with any complication and the total number of complications are recorded
Procedure-specific complications included	
Severity grade utilised	Any grading system designed to clarify severity of complications including major and minor is reported
Length-of-stay data	Median or mean length of stay indicated in the study
Risk factors included in the analysis	Evidence of risk stratification and method used indicated by study

Table 2 – Clavien-Dindo grading system for the classification of surgical complications [11]

Grades	Definitions
I	Any deviation from the normal postoperative course without the need for pharmacologic treatment or surgical, endoscopic, and radiologic interventions. Acceptable therapeutic regimens are drugs such as antiemetics, antipyretics, analgesics, diuretics, and electrolytes, and physiotherapy. This grade also includes wound infections opened at the bedside.
II	Requiring pharmacologic treatment with drugs other than those allowed for grade 1 complications. Blood transfusions and total parenteral nutrition are also included.
III	Requiring surgical, endoscopic, or radiologic intervention.
IIIa	Intervention not under general anaesthesia.
IIIb	Intervention under general anaesthesia.
IV	Life-threatening complication (including central nervous system complications: brain haemorrhage, ischaemic stroke, subarachnoid bleeding, but excluding transient ischaemic attacks) requiring intermediate care/intensive care unit management.
IVa	Single-organ dysfunction (including dialysis).
IVb	Multiorgan dysfunction.
V	Death of a patient.
Suffix "d"	If the patient suffers from a complication at the time of discharge, the suffix "d" (for disability) is added to the respective grade of complication. This label indicates the need for a follow-up to evaluate the complication fully.