Risk of complications during dermatologic surgery: protocol for excisional surgery*

*Risco de complicações durante a cirurgia dermatológica: protocolo das exéreses em fuso**

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Abstract: BACKGROUND - Dermatologic surgery is a common daily practice for dermatologists and it is necessary to carry out studies to demonstrate safety of these procedures.
OBJECTIVES - To create a protocol to assess risk of complications during and immediately after dermatologic surgery, mainly in patients with comorbid conditions.
METHODS - From January 2001 to November 2003, 860 excisional surgeries were performed and all procedures were recorded according to the following variables: age and sex, type of excised lesion, comorbidity, use of medications, size of elliptical excision, duration of surgery, amount and type of anesthetic used, blood pressure. The variables were correlated with risk of complications.
RESULTS - Out of 860 patients submitted to surgery, 64.6% did not present any complication, 34.6% had high blood pressure with no clinical significance, 0.5% had major but controllable bleeding, and two patients had hypotension.
CONCLUSION - Dermatologic surgery is safe and may be performed in private offices or outpatient clinics, and, in most cases, they consist of small and quick procedures, with low risk of complications.
Keywords: Intraoperative complications; Blood pressure; Outpatient surgical procedures

Resumo: *FUNDAMENTOS - A cirurgia dermatológica é prática comum no dia-a-dia do dermatologista, havendo portanto necessidade de estudos que demonstrem a segurança do procedimento.*
OBJETIVO - Criação de protocolo que avaliasse o risco de complicações durante e imediatamente após a cirurgia dermatológica, sobretudo em pacientes com co-morbidades clínicas.
MÉTODOS - Foram realizadas 860 exéreses em fuso no período de janeiro de 2001 a novembro de 2003, sendo todas protocoladas segundo algumas variáveis - como idade e sexo do paciente, tipo de lesão excisada, doenças associadas e uso de medicações, tamanho do fuso, tempo de cirurgia, tipo e quantidade de anestésico utilizado e aferição da pressão arterial -, correlacionando-as ao risco de complicações.
RESULTADOS - Dos 860 pacientes operados, 64,6% não apresentaram nenhuma complicação; 34,6% apresentaram elevação da pressão arterial sem repercussão clínica; 0,5% apresentaram sangramento importante que pôde ser controlado; dois pacientes apresentaram hipotensão arterial.
CONCLUSÃO - A cirurgia dermatológica é muito segura, podendo ser realizada em consultórios ou ambulatorialmente, consistindo, na maioria dos casos, em procedimento pequeno e rápido, sendo o risco de complicações muito baixo.
Palavras-chave: Complicações intra-operatórias; Pressão arterial; Procedimentos cirúrgicos ambulatoriais

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INTRODUCTION

Dermatologic surgery has become a common procedure in the specialist practice and it is often performed in outpatient clinics or offices, i.e., outside the hospital setting. Dermatology changed from a medical specialty to a clinical-surgical specialty; therefore, new studies demonstrating the success and safety of these surgical procedures are necessary. According to the Centers for Medicare & Medicaid Services, in Baltimore, U.S., dermatologists performed more excisions of benign and malignant skin lesions, Mohs micrographic surgery and even graft rotation procedures than other specialists, in 1999.[1] Furthermore, dermatologists and dermatologic surgeons are already performing excision and the follow-up of most skin cancer patients in the U.S.[2] In order to demonstrate safety of these surgical procedures, the authors created the following protocol (Figure 1).

MATERIAL AND METHODS

From January 2001 to November 2003, 860 excisional surgeries, including reconstructions with grafts or flaps, performed at the Dermatologic Surgery Outpatient Clinic, at the Hospital das Clínicas - FMUSP (HC-FMUSP) were recorded. Some variables, such as sex; age; type of excised lesions (basal cell carcinoma, squamous cell carcinoma, nevus, lipoma, epidermal cysts and others); associated diseases (hypertension, cardiomyopathy, coagulation disorders, nephropathy and others); use of medication (antihypertensive agents, anticoagulants, immunosuppressive drugs and others); size of elliptical excision (up to 5cm, 5-10 cm, > 10 cm); duration of surgery (up to 30 minutes, 30-60 minutes, > 60 minutes); type of anesthetic used (vial used in carpule syringe with 1.8 ml of 2% lidocaine solution with or without a vasoconstrictor agent - epinephrine 1:100000) and amount used (up to 1 vial , 1-3 vials, > 3 vials); blood pressure (BP) - before and after the procedure, taking the American Heart Association[3] definition of hypertension into account: systolic pressure =140 mm Hg and diastolic pressure =90 mm Hg. The variables were correlated with risk of complications during and immediately after surgery.

RESULTS

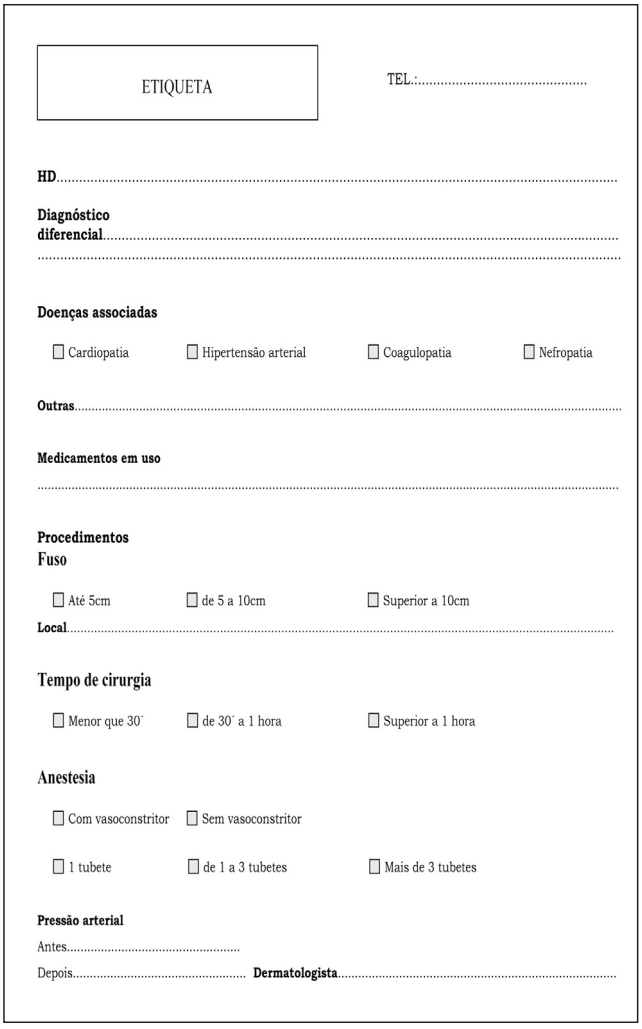
The results of 860 excisions performed between January 2001 and November 2003 at the Dermatologic Surgery Outpatient Clinic, HC-FMUSP are shown in graphs below.

The mean age of patients was 52 years, with a slight predominance of males (53.5%). Among the excised lesions, 20.7% were basal cell carcinomas; 13.7%, nevi; 12.7%, squamous cell carcinomas; 10.5%, epidermal cysts; 7%, lipoma; 3.3%, melanoma; and 32.1%, other lesions (Graph 1).

As to comorbidity, 47.5% of patients were in good general health conditions; 29.8% were hypertensive; 8.5% had heart disease; 1.3%, renal disease; 0.3%, coagulation disorders; and 12.6%, other illnesses (Graph 2).

Regarding use of medications, 54.7% were taking no medication; 23.6% used antihypertensive agents; 3.5%, anticoagulants, such as acetylsalicylic acid (ASA) and warfarin; 3.2%, immunosuppressive drugs; and 15%, other drugs, such as antidepressants or oral hypoglycemic drugs. It is worth mentioning that patients taking anticoagulants were advised to withdraw ASA at least seven days before surgery, and those taking warfarin and anti-inflammatory drugs, such as ibuprofen and indomethacin, withdrew for at

FIGURE 1: Protocolo das Cirurgias em Fuso - Ambulatório de Cirurgia Dermatológica do HC-FMUSP


ETIQUETA

TEL:.....

HD.....

Diagnóstico diferencial.....

.....

Doenças associadas

☐ Cardiopatia ☐ Hipertensão arterial ☐ Coagulopatia ☐ Nefropatia

Outras.....

Medicamentos em uso

.....

Procedimentos

Fuso

☐ Até 5cm ☐ de 5 a 10cm ☐ Superior a 10cm

Local.....

Tempo de cirurgia

☐ Menor que 30´ ☐ de 30´ a 1 hora ☐ Superior a 1 hora

Anestesia

☐ Com vasoconstritor ☐ Sem vasoconstritor

☐ 1 tubete ☐ de 1 a 3 tubetes ☐ Mais de 3 tubetes

Pressão arterial

Antes.....

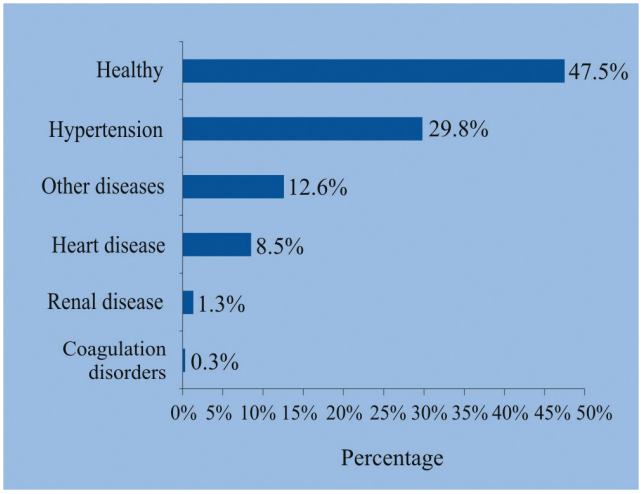
Depois..... **Dermatologista**.....

least four days prior to surgery. According to cardiologists´ recommendation, warfarin could be replaced by heparin (Graph 3).

In terms of size of elliptical excision, 80.5% were smaller than 5 cm; 17% ranged 5-10 cm; and 2.5% were greater than 10 cm (Graph 4). As to anesthesia, in 81% of excisions it was performed with an anesthetic drug plus vasoconstrictor (lidocaine with epinephrine) and in 19%, the anesthetic had no vasoconstrictor agents. In 58.2% of surgeries only a single vial of anesthetic was used; in 32.8%, 1-3 vials; and in 9%, more than 3 vials (Graph 5).

Most procedures (66.2%) lasted less than 30 minutes; 28.6%, from 30 to 60 minutes; and 5.2%, over one hour (Graph 6). Perioperative complications were considered as those occurring during or immediately after the procedure. Infections were not considered complications. Most patients (64.6%) had no complications; there was no deaths occurred; 34.6% had high blood pressure with no clinical significance; 0.5% had bleeding that required a corrective intervention, followed by hematoma in the immediate postoperative period. Among these patients, one was using oral anticoagulants (ASA) and did not discontinue at least seven days prior to surgery, as recommended. Two patients had hypotension and one patient had transient peripheral facial palsy. No other complications were observed (Graph 7).

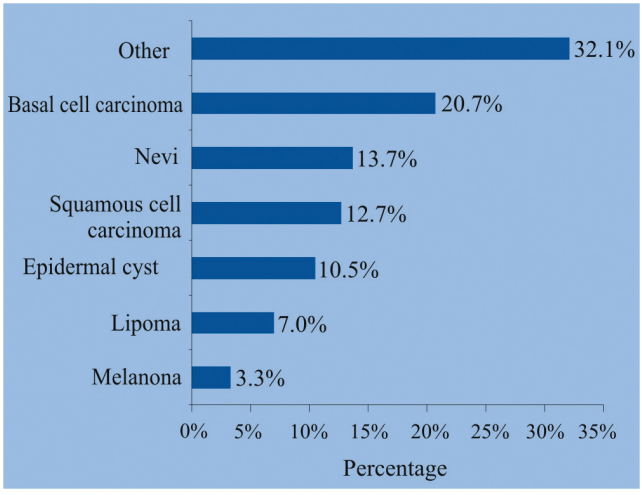
GRAPH 2: Comorbidities



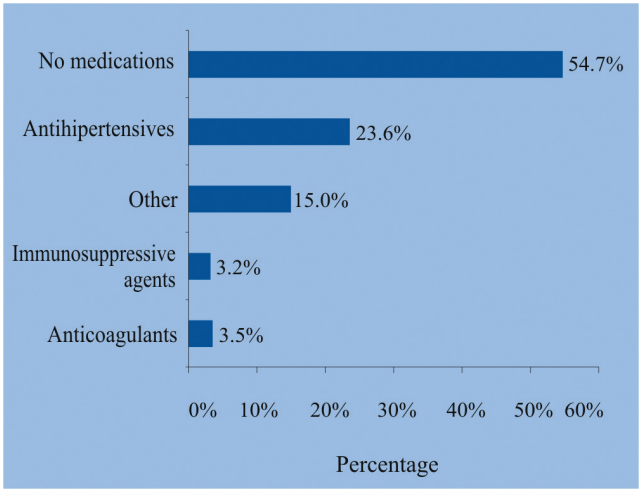
DISCUSSION

Recently, the lay media has reported sensationalist news about the potential risks of surgical procedures performed in clinics or offices. Thus, from the ethical and legal standpoint, studies have been required to demonstrate that dermatologic surgeries are safe. This study verified that dermatologic surgeries are very safe, even when performed at outpatient clinics and on patients with medical comorbidities. Pascual et al.[4] published a recent study restating that the excision of non-melanoma tumors in patients older than 90 years may improve the quality of life of these elderly individuals, since it is a safe and not very aggressive procedure, and it does not cause any trouble to patients or to their families. However, a medical history of the patient should be taken, with a careful assessment identifying the presence of intraoperative or postoperative factors that might increase the risk of complications, such as use of oral anticoagulants or hypertension due to increased risk of bleeding. It is also important to investigate other conditions, such as immunosuppressive disorders or

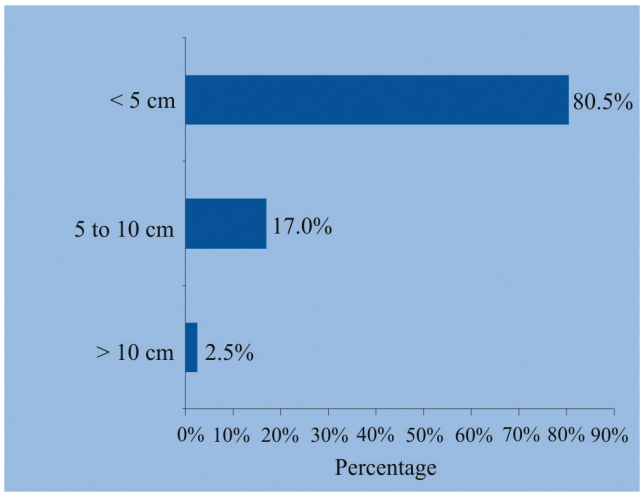
GRAPH 1: Type of lesions



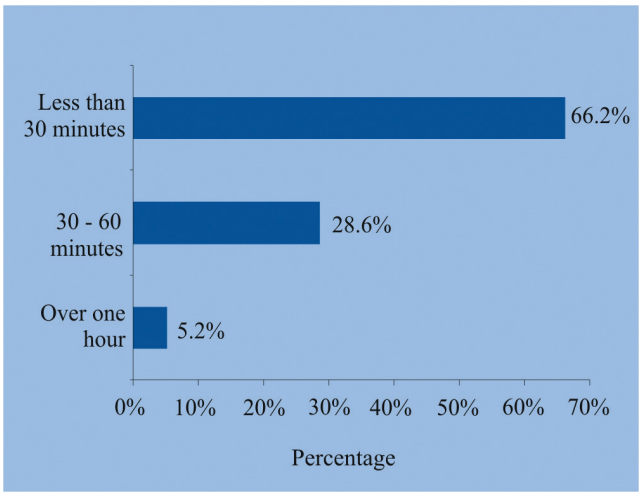
GRAPH 3: Use of Medications



Graph 4: Size of elliptical excision



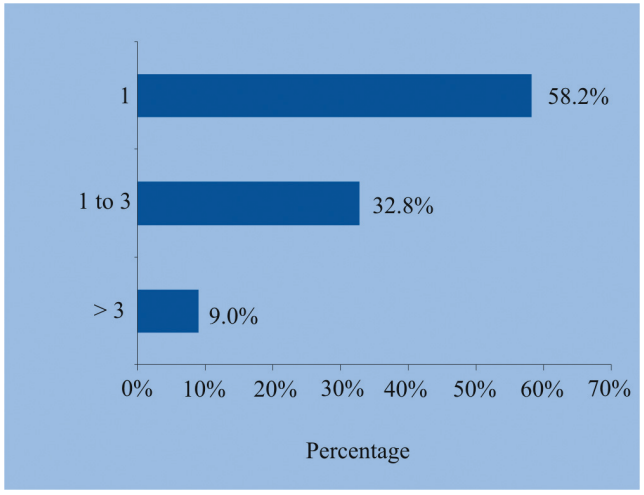
Graph 6: Duration of surgery



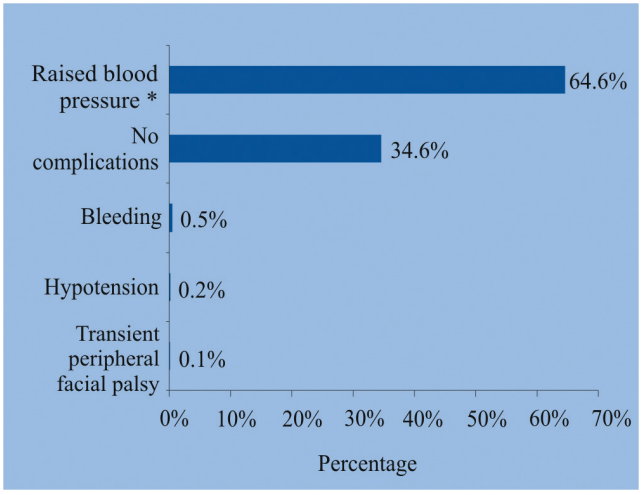
malnourishment, which could interfere with healing. Moreover, patient should be asked about possible harmful habits particularly smoking and alcohol abuse;[5] the latter may increase bleeding due to qualitative platelet inhibition. According to Goldminz and Benett[6] patients who smoke over one pack a day are at higher risk of graft necrosis than non-smokers.

The American Academy of Dermatology Association (AADA)[7] recently published two studies showing that surgical procedures carried out in medical offices are as safe as those performed at hospitals. There is more surgical risk associated to high doses of anesthesia, especially deep sedation and general anesthesia and to abdominal liposuction with the removal of more than 4.5 liters of supernatant fat. These procedures were not performed at our clinics. All reported cases underwent excisions and in 80.5% of cases the tissue removed was less than 5 cm. Local anesthesia was used and in most cases (58.2%); only one vial of anesthesia was used, associated with vasoconstrictors (81%) that decreased absorption and the risk of intoxication, caused vasoconstriction thus decreasing the risk of bleeding and no raise in blood pressure. Anesthetics with vasoconstrictors (epinephrine) should be used with care in patients taking tricyclic antidepressants, thyroid hormones and monoaminooxidade (MAO) inhibitors, due to risk of severe hypertension.

Graph 5: Amount of anesthetic vials



Graph 7: Perioperative complications



*Regardless of being hypertensive or not

Larson and Taylor[3] recently published a prospective study of 100 patients submitted to Mohs micrographic surgery under local anesthesia in a non-hospital setting, and showed that severe complications, such as those shown in this study, are rare; moreover, they found that monitoring vital signs (blood pressure, pulse and blood gases) during surgery did not help to detect or prevent complications. The patients included in this study, who had hypertension during excision did not present any clinical complications.

In 2003, Cook and Perone[1] published a prospective study on the incidence of complications associated with Mohs micrographic surgery and stated that complications occurred in 1.64% (22/1343), generally associated with difficult hemostasis. They also observed a low incidence of bleeding - 0.5% (5/860 patients). Only one out of five patients with bleeding was using ASA for coronary insufficiency and had not discontinue medication at least seven days prior to surgery, as recommended. One patient was on chemotherapy for leukemia and had low platelet count. He bled during the reconstruction with a graft after excision of a basal cell carcinoma on the forehead. One patient had hypertension and used antihypertensive drugs but had normal blood pressure during and immediately after surgery, but bleeding and resistance to anesthesia were observed. Six vials of anesthetic with vasoconstrictor were needed during the excision of a basal cell carcinoma on the anterior part of the left leg and it was decided to let it heal by second intention. Two other patients with bleeding had no comorbidity and did not use anticoagulants. On the other hand, all remaining 29 patients using anticoagulants who followed the recommendation to withdraw their use did not present any complication.

The use of anticoagulants and its withdrawal during the perioperative period is controversial in the literature. Billinsley & Maloney[8] performed a prospective study on bleeding during Mohs micrographic surgery and found a 2.5% (8/322) incidence. No statistically significant difference regarding the incidence of this complication was found when comparing patients using or not using oral anticoagulants. Schanbacher & Bennett[9] presented two cases of stroke in patients who discontinued anticoagulants during the perioperative period. In the present study, we established that, whenever possible, the use of platelet inhibitors, such as ASA, anti-inflammatory drugs, such as indomethacin and ibuprofen, must be discontinued at least seven days before surgery, and warfarin, four days prior to surgery. These drugs could be replaced by heparin according to clinician or cardiologist's recommendations. Other anti-inflammatory drugs, such as cyclo-oxygenase inhibitors and mefenamic acid, do not interfere with coagulation and do not require withdrawal. Other medicines, such as ginko-biloba, vitamin E and garlic, also may increase the risk of intra- and postoperative bleeding and should be interrupted one week before surgery.

However, in this study, the main complications immediately after surgery were related to hemostasis, although controlled. There were two cases of hypotension, probably associated with surgical stress, and one case of transient facial palsy. We intend to extend this investigation to include the assessment of late postoperative complications reported in the medical literature, such as graft and flap necrosis, hemorrhage and hematoma, surgical wound dehiscence and infection.

CONCLUSION

This paper showed that the risk of complications during and immediately after dermatologic surgery is very low, even in patients with medical comorbidities. It stresses the need for a good medical history taking, as well as knowledge of surgical techniques to reduce complications.

Dermatologic surgery is a safe, minor and quick procedure that can be generally performed in non-hospital settings, such as offices and outpatient clinics. ❑

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