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Original article

Hip disarticulation – case series analysis and literature review☆

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ABSTRACT

Objective: To present a retrospective study of 16 patients submitted to hip disarticulation.
Methods: During the period of 16 years, 16 patients who underwent hip disarticulation were identified. All of them were studied based on clinical records regarding the gender, age at surgery, disarticulation cause, postoperative complications, mortality rates and functional status after hip disarticulation.
Results: Hip disarticulation was performed electively in most cases and urgently in only three cases. The indications had the following origins: infection ($n = 6$), tumor ($n = 6$), trauma ($n = 3$), and ischemia ($n = 2$). The mean post-surgery survival was 200.5 days. The survival rates were 6875% after six months, 5625% after one year, and 50% after three years. The mortality rates were higher in disarticulations with traumatic (66.7%) and tumoral (60%) causes. Regarding the eight patients who survived, half of them ambulate with crutches and without prosthesis, 25% walk with limb prosthesis, and 25% are bedridden. Complications and mortality were higher in the cases of urgent surgery, and in those with traumatic and tumoral causes.
Conclusion: Hip disarticulation is a major ablative surgery with obvious implications for limb functionality, as well as high rates of complications and mortality. However, when performed at the correct time and with proper indication, this procedure can be life-saving and can ensure the return to the home environment with a certain degree of quality of life.

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☆ Study conducted at the Centro Hospitalar e Universitário de Coimbra, Departamento de Ortopedia, Coimbra, Portugal.

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Desarticulação da anca – Análise de uma série e revisão da literatura

Palavras-chave:
Articulação da anca
Desarticulação
Amputação
Extremidade inferior
Infeção
Tumor

RESUMO

Objetivo: Apresentar um estudo retrospectivo em 16 pacientes submetidos a desarticulação da anca.

Métodos: Foram identificados 16 pacientes submetidos a desarticulação da anca ao longo de 16 anos. Todos foram estudados por meio dos registos clínicos quanto a sexo, idade na cirurgia, causa da desarticulação, complicações no pós-operatório, índices de mortalidade e grau de funcionalidade após a desarticulação da anca.

Resultados: A desarticulação da anca foi feita eletivamente na maioria das situações e apenas de forma urgente em três casos. As indicações tiveram as seguintes origens: infecção (n = 6), tumor (n = 5), traumatismo (n = 3) e isquemia (n = 2). O tempo médio global de sobrevivência pós-cirurgia foi de 200,5 dias. Os índices de sobrevivência foram de 68,75% após seis meses, 56,25% após um ano e de 50% após três anos. Os índices de mortalidade foram mais elevados nas desarticulações de causa traumática (66,7%) e de causa tumoral (60%). Em relação aos oito pacientes que permanecem vivos, metade faz marcha com apoio de muletas canadenses e sem prótese, 25% fazem marcha com membro protético e 25% encontram-se acamados. As taxas de complicações e mortalidade foram mais elevadas nas desarticulações urgentes e nas efetuadas em consequência de traumatismos e tumores.

Conclusão: A desarticulação da anca é uma cirurgia altamente mutilante, com implicações óbvias na funcionalidade do membro e taxas elevadas de complicações e mortalidade. No entanto, quando efetuado em um momento adequado e com indicação correta, esse procedimento pode salvar a vida do paciente e garantir o seu regresso ao domicílio com alguma qualidade de vida.

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Introduction

Hip disarticulation is the amputation of the lower limb through the hip joint; it continues to be one of the most radical procedures in orthopedic surgery.[1,2] This surgery accounts only for approximately 0.5% of lower limb amputations.[1] The most frequent indications are highly invasive tumors of the musculoskeletal system that are unresectable with limb conservation, limb ischemia, trauma, and severe musculoskeletal infections of the pelvic region and/or groin.[1]

Material and methods

The authors present a series of 16 patients who underwent hip disarticulation over a period of 16 years (1999–2015) at this institution, which includes centers dedicated to tumors and septic pathology of the musculoskeletal system. All patients were characterized and studied retrospectively through clinical records regarding gender, age at surgery, cause of disarticulation, postoperative complications, mortality rates, and degree of functionality after hip disarticulation. The variables were analyzed using SPSS, version 23, and a 0.05 significance level was adopted. Quantitative values were presented as mean, minimum value, maximum value, and standard deviation, while qualitative values were described as number (*n*) and percentage (%). For the comparisons of qualitative variables between groups, the chi-squared test was used, while the Mann–Whitney test was used for quantitative variables. This study was approved by the Ethics Committee of the Centro Hospitalar e Universitário de Coimbra, and all patients or their respective families signed an informed consent form.

Results

Sample comprised of 16 patients, nine males and seven females, with a mean age of 61.25 years (29–87). Disarticulation surgery was performed according to the techniques described in the literature.[3,4] After isolating and ligating the femoral neurovascular bundle, the hip muscles were cut to the level of the femoral head, which was separated from the acetabulum.

Hip disarticulation was performed electively in most situations; only three cases required emergency surgery. Indications for hip disarticulations were infection (*n* = 6), tumor (*n* = 5), trauma (*n* = 3), and ischemia (*n* = 2) (Fig. 1 and Table 1). For elective surgeries, hemoglobin reduction between the preoperative and immediate postoperative periods (mean 3.37, range: 0.7–4.3) was used to assess intraoperative blood losses.

Large reconstructive prostheses were the most common cause of disarticulation due to infection (66.67% of the cases). The remaining cases of infection occurred in ischemic and necrotic contexts. The most frequently detected microorganism was *Staphylococcus aureus* (*n* = 3), followed by *Pseudomonas aeruginosa* (*n* = 2) and *Enterococcus faecium* (*n* = 2). Infections were mostly monomicrobial; only one case had polymicrobial infection. Tumors found as a cause of hip disarticulation were

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