Original Paper

KARYDAKIS FLAP ON SACROCOCCYGEAL PILONIDAL DISEASE: A BRIEF REVIEW AND DEPARTMENT EXPERIENCE

PLASTIA DE KARYDAKIS NA DOENÇA PILONIDAL SACROCOCCÍGEA: UMA BREVE REVISÃO E EXPERIÊNCIA DE UM SERVIÇO

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Received: 10/11/2023 *Accepted:* 20/12/2023 *Published online:* 25/12/2023

ABSTRACT

Introduction: The sacrococcygeal pilonidal disease (SPD) represents a group of abscesses or sinuses with hairy content, occurring in the intergluteal cleft. Karydakis flap (KF) technique is based on the excision of SPD with a mobilized fasciocutaneous flap, with lateral suture lines. With this flap, by decreasing tension in the surgical wound, leads to less pain, faster recovery and, therefore, it reduces recurrence and complication rates. Due to the low learning curve and high reproducibility rate, this technique was routinely introduced in our Department. **Methods:** This retrospective study comprised patients submitted to chronic SPD excision between January 2010 and December 2017. Out of 1621 patients, 97 underwent chronic SPD excision under KF technique. Patient data were obtained by analyzing Institution records and making phone calls inquiring surgical complications. **Results:** Our recurrence rate was 3.1% (n=3) and post-operative complication was 19.6% (n=19). **Discussion:** recurrence rate matches the consulted literature for the same procedure: 4% for Kitchen et al., 3.16% for Erkent et al., <1% for Karydakis and 6% for Ferreira et al.. Complication rate was relatively high (19.6%) but similar to some published literature (21% for Petersen et al. and 19% for Kartal et al.; 14% for Ferreira et al.; 10.1% for Erkent et al. and 8.5% for Karydakis). **Conclusion:** In agreement with the published literature, this technique is therefore validated for use in our Institution.

Keywords: *pilonidal sinus surgery, surgical flaps, surgical wound dehiscence, recurrence, treatment outcome*

RESUMO

Introdução: A doença pilonidal sacrococcígea (DPS) representa um grupo de abscessos ou *sinus* de conteúdo piloso, localizados na prega interglútea. A técnica da plastia de Karydakis (PK) é baseada na excisão da DPS através da mobilização de um retalho fasciocutâneo, com linhas de sutura laterais. Com esse retalho, ao diminuir a tensão na ferida operatória, diminui a dor e tempo de recuperação reduzindo, assim, taxas de recorrência e complicações. Pela curta curva de aprendizagem e alta reprodutibilidade, esta técnica foi introduzida de forma rotineira no nosso Serviço.

ISSN: 1646-6918 eISSN: 2183-1165

Métodos: Este estudo retrospetivo incluiu doentes submetidos a excisão da DPS crónica entre janeiro de 2010 e dezembro de 2017. Dos 1621 doentes, 97 foram submetidos a excisão da DPS crónica pela técnica da PK. Os dados sobre os doentes foram obtidos utilizando os registos Hospitalares e através da realização de telefonemas questionando complicações. **Resultados:** a taxa de recorrência foi de 3,1% (n=3) e a de complicações pós-operatórias de 19,6% (n=19). **Discussão:** a taxa de recorrência está de acordo com a literatura consultada para o mesmo procedimento: 4% para Kitchen et al., 3,16% para Erkent et al., <1% para Karydakis e 6% para Ferreira et al. A taxa de complicações foi relativamente alta (19,6%), mas semelhante a alguma literatura publicada (21% para Petersen et al. e 19% para Kartal et al., 14% para Ferreira et al., 10,1% para Erkent et al., 8,5% para Karydakis. **Conclusão:** Em concordância com a literatura publicada, esta técnica é, portanto, validada para uso na nossa Instituição.

Palavras-chave: *quisto pilonidal / retalhos cirúrgicos, deiscência da ferida cirúrgica, recidiva, resultados do tratamento.*

INTRODUCTION

The sacrococcygeal pilonidal disease (SPD), first described by Mayo in 1833[1], represents a group of abscesses or sinuses with hairy content, occurring in the intergluteal cleft. It tends to recur, having an estimated incidence of 26/100,000 population, occurring mostly in male (ratio 3-4:1) white patients, typically in the late teens to early twenties and rarely occurring after age 45.[2]

The pathogenesis was first considered congenital, but the theory accepted today is that it is considered acquired, mainly by 3 factors highlighted by Georgios Karydakis (loose hair, external force of hair into the skin and vulnerability of the intergluteal cleft skin).[3] Patients with chronic SPD (constant and symptomatic without spontaneous healing over several months) are candidates to surgical excision.[4]

Karydakis flap (KF) technique is based on the excision of the diseased tissue from the midline with a mobilized fasciocutaneous flap, with lateral suture lines. With this flap, by decreasing the tension in the surgical wound, it leads to less pain, faster recovery and, therefore, it reduces recurrence and complication rates.[5] Various case series reported a <6% recurrence rate and 4-21% local complication rates.[2,5-9] Thus, and due to the low learning curve and high reproducibility rate, this technique was routinely introduced in our Department. The aim of this study is to relate our experience with this technique, with epidemiological data and surgical results, then comparing our results with the relevant literature.

MATERIAL AND METHODS

This retrospective, observational and descriptive study comprised patients submitted to SPD excision on the Ambulatory Surgery Department of our Institution between January 2010 and December 2017. Out of 1621 patients, 97 (~6%) underwent chronic SPD excision under KF technique. Data were collected after Hospital Administration and Ethics Committee permission, according to the Helsinki Declaration.

Age at time of surgery, gender and post-operative minor complication data (dehiscence, infection, seroma, bleeding and dysmorphism) were obtained using our Institution records of all patients submitted to SPD excision. Data about using this technique in SPD recurrence after primary surgery were also obtained.

All patients had an ~3 month follow up after surgery, in which they were discharged if they had no evidence of complications or recurrence. In each one a phone call was made inquiring surgery complications, and people who didn´t answer were called a second time one week later.

ISSN: 1646-6918 eISSN: 2183-1165

Patients without clear surgical record of having KF were excluded from this study.

Statistical analyses were performed using SPSS (Statistical Package for the Social Sciences ver. 25.0, SPSS Inc., Chicago, Illinois, USA) computer software. Frequencies were used to report demographic data and $p<0.05$ was considered significant while comparing means.

Surgical technique

After trichotomy of the region, under general anesthesia and antibiotics (cefazolin 2g or clindamycin 1,2g in case of allergy) the patients undergone cyst extraction according Karydakis technique-type:[8]

- elliptical incision surrounding the cyst, deviated from the midline (Fig. 1);
- extraction of the lesion until the presacral fascia;
- flap creation, anterior to the gluteal fascia, to reduce closure tension;
- subcutaneous cell tissue closure with polyglactin absorbable 2/0 interrupted suture;
- skin closure with non-absorbable polypropylene 3/0 intradermic suture (Fig. 2).

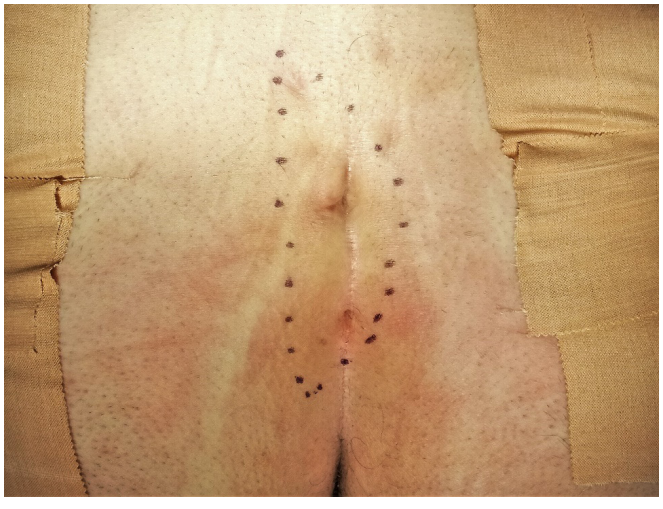

Figure 1 – **Before Karydakis Flap procedure (skin marking).**

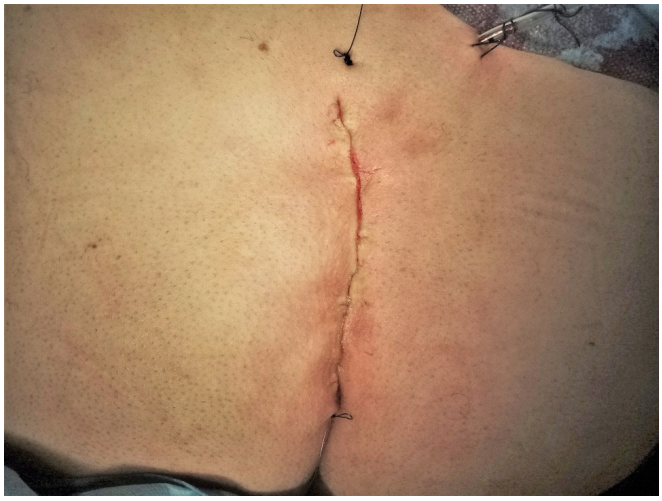

Figure 2 – **After Karydakis Flap procedure.**

All patients carry suction drainage nº10 or 12, removing after draining less than 30 ml/day. They are discharged on the same operative day (<23-hour recovery), under antibiotherapy with amoxicillin clavulanate or clindamycin for 8 days, as it is a contaminated wound.[9]

RESULTS

Between 97 patients submitted to KF, 66 were male (68%) and 31 were female (32%), with a median age of 22.8 years (male=23.2, female=22.1 years, p=0.5). 72 patients (74.2%) answered our phone calls.

Our recurrence rate was 3.1% (n=3), in which 1 patient underwent further surgery. In recurrent SPD submitted to KF (n=8) we had no registration of recurrence (0%). Recurrence rate in patients with post-operative complications was 10.5%.

Table 1 – **Recurrence rates [number of cases (%)]**

Global recurrence	3 (3.1)
Recurrence on post-operative complications	2 (10.5)
Recurrence without post-operative complications	1 (1.3)
Recurrence on recurrent SPD	0 (0)
Recurrence without recurrent SPD	3 (3.4)

ISSN: 1646-6918

eISSN: 2183-1165

Post-operative complication rate was 19.6% (n=19), in which 58% were surgical site infection. We had one case of dysmorphism that required new corrective surgery.

In recurrent SPD the complication rate was 50% (n=4).

Table 2 – **Post-operative complications [number of cases (%)]**

Total	19 (19.6)
Infection	11 (11.3)
Dehiscence	7 (7.2)
Seroma	2 (2.1)
Bleeding	1 (1.0)
Dysmorphism	1 (1.0)

DISCUSSION

Our 3.1% recurrence rate match the consulted literature for the same procedure: 4% for Kitchen et al.[2], 3.16% for Erkent et al.[6]; Karydakis[8] had an <1% recurrence rate and one similar Portuguese study by Ferreira et al.[7] had an 6% recurrence rate.

Regarding complication rates, in our study it was relatively high (19.6%) but similar to some published literature (21% for Petersen et al. [9] and 19% for Kartal et al.[5]; 14% for Ferreira et al.[7]; 10.1% for Erkent et al.[6]; 8.5% for Karydakis[8]).

Our KF population did also match the known disease epidemiological data (mainly early twenty males).

There was no relapse in any patient with recurrence of primary SPD, even though the number of patients treated in this condition is small (n=8). In fact, the 2019 The ASCRS Clinical Practice Guidelines for the Management of Pilonidal Disease recommend flap-based procedures specially in complex and recurrent chronic pilonidal disease.[10]

Nonetheless, we didn't have a standardized follow up in all patients (some had surgery very recently and didn´t had time to develop recurrence; not everyone attended follow up appointments); phone calls were made to avoid that bias but not everyone attended them, so a prospective study could be made to assess better our complication and recurrence rates.

CONCLUSION

Our results match the published literature, validating the use of this technique in our Institution. Nevertheless, more studies should be made comparing other techniques (primary midline closure, second intention closure) to assess if KF is effective on reducing complication and recurrence rate on SPD in our population and a more homogenous follow-up should be implemented to better evaluate our patients.

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ISSN: 1646-6918

eISSN: 2183-1165

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ISSN: 1646-6918

eISSN: 2183-1165