

Available online at www.sciencerepository.org

Science Repository



Case Report

Synchronous Bilateral Local Medial Sural Artery Perforator Flaps for “Hooker Knees”

Geoffrey G. Hallock*

Division of Plastic Surgery, St. Luke’s Hospital, Sacred Heart Division, Allentown, Pennsylvania, USA

ARTICLE INFO

Article history:

Received: 16 April, 2020

Accepted: 30 April, 2020

Published: 4 May, 2020

Keywords:

Hooker knees

medial sural artery perforator flap

pressure sores

ABSTRACT

Pressure sores restricted to the knee region in an ambulatory patient are extremely unusual. However, this can be an occupational hazard for the prostitute who is not given the courtesy of adequate breaks to prevent simultaneous bilateral knee tissue ischemia. The existence of this condition to date has been poorly discussed in the reconstructive literature. Yet treatment varies little from the basic principles for pressure sore management. Once that is completed, the medial sural artery perforator flap donor site usually remains uninvolved by any etiological mechanisms and provides a local flap with a long pedicle that potentially can permit the necessary synchronous coverage of the bilateral “hooker knee.”

© 2020 Geoffrey G. Hallock. Hosting by Science Repository.

Introduction

Contrary to popular belief, an etymological search of the English word “hooker” proves that this has existed in the dictionary since 1567, with an antiquated definition to be a thief or pickpocket who uses a pole with a hook on the end to facilitate his thievery [1, 2]. Not until 1845 was this broadened to be a contemporary synonym for “prostitute” [1]. Yet many instead have associated the derivation of this impropriety only with the American Civil War Union Major General, Joseph “Fighting Joe” Hooker [3, 4]. As commander of the Army of the Potomac, his most decisive military loss was in early 1863 at the Battle of Chancellorsville where outgeneraled and outflanked by Robert E. Lee [5, 6]. Perhaps better remembered from that confrontation was the accidental shooting of Thomas “Stonewall” Jackson by his own men when he was returning from a reconnaissance [4-6].

Hooker soon thereafter delivered a telegram asking to be relieved of his command, and quickly was so by Lincoln who inserted George G. Meade into that role a mere 3 days before the Battle of Gettysburg, which ironically turned the course of the rebellion to its conclusion as we know it today [4, 7]. Legend has it that it is no coincidence that Hooker’s infamous surname is what most know it to be today. History well recognizes that fact that both the Union and Confederate armies were

followed from encampment to encampment by “ladies of the night” [3]. Hooker used his volunteer “Hooker’s Bridge” to maintain a high level of morale, while he personally established a reputation as a hard-drinking lady’s man known also for his gambling and parties like no other [8]. No wonder “hooker” became slang for prostitute, perhaps apropos.

That “hookers” persist today is reality, as many who are struggled to survive against unmanageable odds and demands. One occupational hazard is “hooker knees,” which according to the Urban Dictionary is “the banged up, bruised, and unsightly knee of a hooker” [9]. It should be no surprise that the wound skills of the plastic surgeon will be called upon to assist these women in distress. What is surprising is that an advanced search of the archives of all the major plastic surgery print journals, as well as an online search of PubMed and the Library of Congress revealed a sum total of zero articles describing this condition or its treatment. This fact will here now be remedied.

Case Report

Hooker Knees

Almost as an afterthought by the hospitalist, we were led to an unfortunate and destitute 50-year-old female who had been admitted a

*Correspondence to: Geoffrey G. Hallock, M.D., 1230 South Cedar Crest Boulevard, Suite 306, Allentown, PA 18103, Pennsylvania, USA; Tel: 6104357555; Fax: 6104358164; E-mail: gghallock@hotmail.com

week previously into our inner-city hospital psychiatric unit following a heroin overdose and suffering a stated bipolar affective disorder. She had no other medical issues, but a single physical abnormality of medium sized eschars without overt signs of infection overlying both patella (Figure 1). Further questioning revealed she survived by performing the duties of a prostitute in a kneeling position; and reportedly three weeks prior had had 70 clients in a single day without a break. After that she developed the observed bilateral knee skin breakdown, consistent with pressure sores.



Figure 1: Bilateral parapatellar pressure sore eschars, an example of “hooker knees.”

After maximizing her nutritional status and a course of appropriate antibiotics, the following week operative debridement of the right knee removed all necrotic tissue down to the periosteum of the patella, but the left knee had more significant pathology as even a portion of the vastus medialis muscle as it inserted onto the quadriceps tendon was obviously non-viable. Mandatory flap coverage had been planned, and calf perforators over the medial head of the gastrocnemius muscle bilaterally had been identified preoperatively with thermography (Figure 2) [10]. Local medial sural artery perforator flaps of size equal to the debrided defects were synchronously harvested from each calf based on those perforators in routine fashion, with pedicle dissection sufficient to allow reach to the knee [11]. Minor distal edge necrosis of the left knee flap occurred but healed satisfactorily with only bedside treatment.

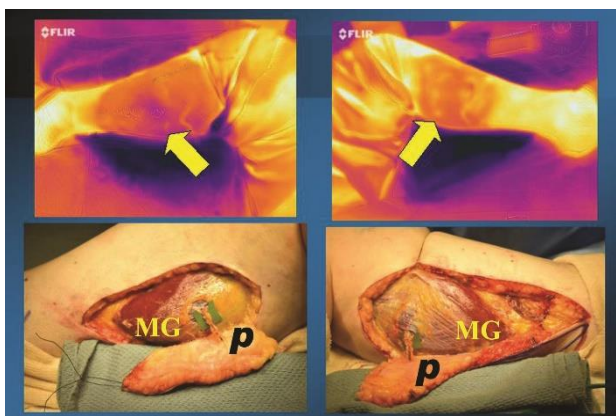


Figure 2: Smartphone thermal images after a cold challenge rapidly allowed identification of “hot spots” [arrows] in both calves over the medial head of the gastrocnemius muscle [MG], that were suspected to be medial sural artery perforators [MSAP] [p] using an audible Doppler [above], then confirmed to be so via exploratory incisions following the eccentric design of a MSAP flap synchronously raised in both calves [below].

The patient refused transfer to a rehabilitation facility, so she was maintained in the hospital setting with knee immobilizers for 3 more weeks to ensure neovascularization sufficient for the flap to be perforator pedicle independent. She actually returned home, and unexpectedly kept clinic appointments that demonstrated adequate healing (Figures 3 & 4). Whether pressure will be kept off the flaps and if she will return to work are factors outside our control. At least we were able to restore normal ambulatory function without further impediment.



Figure 3: Last follow-up showed adequate bilateral patella soft tissue coverage by these synchronous MSAP local flaps.



Figure 4: Larger MSAP flap from the left calf required closure with a skin graft, whereas the linear scar of the right calf where closed primarily still resulted in a non-aesthetic scar characteristic of this donor site.

Discussion

Pressure sores are due to soft tissue ischemia directly correlated to unrelieved pressure usually over a bony prominence [12]. Bauer and Phillips have shown that the pressure on the patella with the patient in a prone position is almost of magnitude equal to that over the sacrum for the supine patient [12]. Basic surgical treatment requires the relief of that pressure, debridement of any devitalized tissues, and then some form of flap closure to best prevent recidivism. Other equally important issues if long term success is to be achieved are to ensure an adequate nutritional, social, and economic status, which relies on a multispecialty approach [12].

Pressure sores can occur anywhere in the body for a multitude of reasons, although by far are found most often overlying the ischium, trochanter, or sacrum [12, 13]. Pressure sores of those individuals who are

independently ambulatory are the minority and involving the knee unusual [13]. For that matter, women with hooker knees rarely develop pressure sores as shown possible in this case report. Multiple local perforator flap options that preserve muscle function in these ambulatory patients are available for knee coverage [14, 15]. Unlike the usual anterior donor sites, the medial sural artery perforators [MSAP] will be unlikely to have been adversely affected by any tissue necrosis, so represent a reasonable basis as an island flap with a potentially long pedicle to reach the patella [11]. Indeed, for some as in this region, the MSAP flap has become a “workhorse” flap [16].

Acknowledgements

David C. Rice, B.S., P.E., St. Luke’s Hospital, Sacred Heart Division, Allentown, Pennsylvania assisted with all surgical aspects.

REFERENCES

1. <https://www.etymonline.com/word/hooker>.
2. <https://en.wiktionary.org/wiki/hooker>.
3. <https://www.wearethemighty.com/history/reason-working-girls-called-hookers>.
4. Goodwin DK (2005) *Team of Rivals*, Simon & Schuster, New York. 519-532.
5. McPherson JM (2008) *Tried by War*, Penguin, New York. 176-177.
6. Kennedy FH (1990) Editor, *The Civil War Battlefield Guide*, Houghton Mifflin, Boston. 108-110.
7. Stackpole EJ (1959) *They Met at Gettysburg*, The Telegraph Press, Harrisburg, Pennsylvania, 4th Printing 41.
8. https://en.wikipedia.org/wiki/Joseph_Hooker.
9. <https://www.urbandictionary.com/define.php?term=hooker%20knees>.
10. Pereira N, Hallock GG (2020) Smartphone Thermography for Lower Extremity Local Flap Perforator Mapping. *J Reconstr Microsurg* 23. [Crossref]
11. Hallock GG (2004) The medial sural(MEDIAL GASTROCNEMIUS) perforator local flap. *Ann Plast Surg* 53: 501-505. [Crossref]
12. Bauer J, Phillips LG (2008) MOC-PSSM CME Article: Pressure sores. *Plast Reconstr Surg* 121: 1-10. [Crossref]
13. Isenberg JS, Ozuner G, Restifo RJ (1995) The natural history of pressure sores in a community hospital environment. *Ann Plast Surg* 35: 361-365. [Crossref]
14. Schaverien M, Saint Cyr M (2008) Perforators of the lower leg: analysis of perforator locations and clinical application for pedicled perforator flaps. *Plast Reconstr Surg* 122: 161-170. [Crossref]
15. Kim JT, Ho SY, Kim YH (2015) An improved perforator-based island flap: the heart balloon flap. *Plast Reconstr Surg* 135: 1472-1475. [Crossref]
16. Daar DA, Abdou SA, Cohen JM, Wilson SC, Levine JP (2019) Is the Medial Sural Artery Perforator Flap a New Workhorse Flap? A Systematic Review and Meta-Analysis. *Plast Reconstr Surg* 143: 393e-403e. [Crossref]