

Multidisciplinary Surgical Management of Vaginal Evisceration: A Case Report

Abstract Vaginal dehiscence with evisceration is a surgical emergency where all cases are surgically managed. However, identifying the optimal approach in a patient with a history of prior chemoradiation and multiple native-tissue pelvic reconstructive surgical procedures may be challenging. We present here a multidisciplinary case of a 74-year-old patient where flap and graft material placement were utilized as part of her management. She presented as a transfer from an outside hospital for vaginal evisceration of small bowel contents. She was hemodynamically stable, and physical examination revealed 14 cm of edematous, nonreducible, hyperemic bowel protruding beyond her introitus. General surgery and plastic surgery services were consulted for multidisciplinary management. She underwent urgent exploratory laparotomy with an oblique rectus abdominus flap (performed by plastic surgery), small bowel resection and right hemicolectomy (by general surgery), and closure of the distal posterior vaginal wall dehiscence site with placement of a saline-reconstituted decellularized fish skin xenograft within the vaginal defect (by urogynecology). Her postoperative course was uncomplicated, and she was discharged home on postoperative day (POD) 11. She was recovered and asymptomatic at her 4-week postoperative follow-up visit, where she declined scheduling further follow-up appointments. In conclusion, vaginal incision dehiscence with evisceration is best approached early on in a multidisciplinary manner. Select patients, such as those with an extensive pelvic surgical history, multiple vulnerable vaginal incision lines, and history of recurrent prolapse may benefit from consideration of flap placement and application of graft material for wound healing and surgical site integrity at the time of repair.

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Vaginal dehiscence (VD) describes either a partial or full-thickness disruption of the vaginal tissue and is a surgical emergency. It occurs in between 0.032% and 1.2% of patients following pelvic surgery with an approximate mortality rate of 6%, with a mean time to occurrence between 6.1 weeks and 1.6 years after surgery.^{1–5} Vaginal dehiscence can occur at the vaginal cuff or along anterior or posterior vaginal walls, with the possibility of VD with expulsion of intraperitoneal contents (VDE).^{6–9} Patients may present with abdominal or pelvic pain, vaginal bleeding, and vaginal discharge, and those with evisceration may experience symptoms resembling pelvic organ prolapse warranting urgent evaluation.^{1,10–12} Commonly suggested risks factors include age,

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WHY THIS MATTERS

Vaginal dehiscence with evisceration is a rare but serious complication following hysterectomy that does not occur exclusively through the vaginal apex. It can also mimic pelvic organ prolapse symptoms as was the case for our patient with a history of chemoradiation and multiple pelvic reconstructive surgical procedures. Her evisceration ultimately presented through a posterior vaginal wall defect just cephalad to her introitus, suggesting bowel herniation through the rectovaginal septum and the posterior vaginal wall. Given her atypical dehiscence presentation and compromised pelvic floor tissue integrity, use of pedicled flaps and graft material rather than a site-specific graft to ultimately compartmentalize the abdomen and pelvis was considered as part of a multidisciplinary discussion between her general surgery, plastic surgery, and urogynecology teams. Our

experience reaffirms the value of pursuing multidisciplinary evaluation early on for patients with this presentation to expedite resource mobilization and maximize skill sets available for patient care.

menopausal status, and surgical approaches and techniques.^{10,13} However, it remains unclear how they contribute to incidence and location of VD.^{14–18}

We report the case of a patient with a history of chemoradiation for rectal cancer and multiple native-tissue pelvic reconstructive surgical procedures for recurrence of bothersome vaginal bulge symptoms. She presented with a VDE managed in a multidisciplinary manner involving bowel resection and placement of an oblique rectus abdominus myocutaneous (ORAM) flap and a saline-reconstituted decellularized fish skin xenograft.

CASE PRESENTATION

A 74-year-old female with body mass index of 18 and a history of rectal cancer treated with chemoradiation and an extensive pelvic reconstructive surgical history presented to our facility’s emergency department as transfer from an outside hospital for

management of bowel prolapsing through her vagina (Table 1). She called her surgeon 5 months after her surgery in 2024 reporting vaginal bulge recurrence, though she was not evaluated in office. She subsequently presented to the outside hospital upon noticing protrusion of contents per vagina after a severe coughing episode. Multiple edematous-appearing bowel loops were prolapsing through her vagina and could not be manually reduced, and computed tomography (CT) confirmed no additional intra-abdominal pathologic processes. She was otherwise stable, afebrile, and without leukocytosis. She was initiated on ciprofloxacin and metronidazole and transferred to our facility for a higher level of care 11 hours following initial presentation.

Upon arrival, she reported intermittent nausea and abdominal pain. Her vitals remained stable and examination confirmed 14 cm of edematous, non-reducible, hyperemic, and macerated loops of bowel with mesentery protruding through her introitus. She was unable to tolerate an internal examination, which precluded determination of vaginal defect location. Repeat laboratories performed 10 hours following initial laboratories and 11 hours following checking in to her local hospital demonstrated new leukocytosis (white blood cells 12,000/uL). She was counseled about surgical management, and her antibiotics were transitioned to piperacillin-tazobactam

TABLE 1. Patient’s Surgical History

Surgery Date	Procedure	Comment
1978	Total abdominal hysterectomy, bilateral salpingoophorectomy	Uterine cancer, no additional treatment
1995	Abdominoplasty	No records available
2010	Anterior colporrhaphy	No records available
2019	Anterior and posterior colporrhaphy	No records available
2020	EUA, rectal biopsies	Rectal squamous cell carcinoma treated with chemoradiation
2022	Anterior and posterior colporrhaphy, enterocele repair, perineorrhaphy, and cystoscopy	Stage 3 posterior vaginal prolapse, with patient desiring preservation of ability for penetrative intercourse Thin, friable vaginal tissue appreciated Rectovaginal fascia visualized
2024	Attempted total colectomy and enterocele repair Intraoperative conversion to posterior colporrhaphy and perineorrhaphy, and cystoscopy	Stage 4 posterior-predominant vaginal vault prolapse, with patient no longer sexually active Thin, friable vaginal tissue appreciated No rectovaginal fascia visualized → aborted colectomy/enterocele repair

Surgical procedures before 2020 were completed at out-of-region hospitals. Her surgeries between 2020 and 2024 up through just before her presentation for VDE were completed at an outside hospital system within the region. EUA, examination under anesthesia; VDE, vaginal dehiscence with expulsion of intra-peritoneal contents.

given her leukocytosis and anticipation of open surgery with bowel resection. General surgery was consulted for bowel resection and given her poor tissue quality in the pelvis from multiple prior surgical procedures and radiation, plastic surgery consultation was recommended by general surgery to place a flap in the pelvis to exclude the bowels from entering the pelvis again.

In the operating room, examination under anesthesia noted loops of small bowel emerging through a defect in the posterior vaginal wall with an intact vaginal apex and inability to reduce the bowel. Cystoscopy and retrograde pyelograms confirmed normal urinary tract, and ureteral stent placement attempts were unsuccessful due to severe ureteral angling from extrinsic compression by her prolapsing bowel.

She then underwent exploratory laparotomy and ORAM flap preparation. The skin paddle for the flap was centered over the skin Doppler signal, corresponding

to the visualized perforator on CT critical to flap perfusion (Fig. 1A–C). Paddle width was determined by primary donor-site closure, and an oblique pattern angled toward the tip of the scapula was determined to be the optimal orientation. The paddle was de-epithelialized and dissected to the level of the anterior rectus sheath (Fig. 1D). Perforator location was again confirmed with an intraoperative Doppler, and the anterior sheath was then entered sharply a safe distance superior to the signal. Approximately half of the width of the rectus abdominis muscle was raised with the flap to protect vascular integrity. Dissection terminated upon being sufficiently isolated on the deep inferior epigastric artery to allow for internal rotation and ultimate inset (Fig. 1E).

Afterwards, abdominal exploration confirmed terminal ileum vaginal evisceration managed with small bowel resection with 60 cm of resected bowel removed through the vagina. Given proximity to the ileocecal valve, a right hemicolectomy with ileo-colic

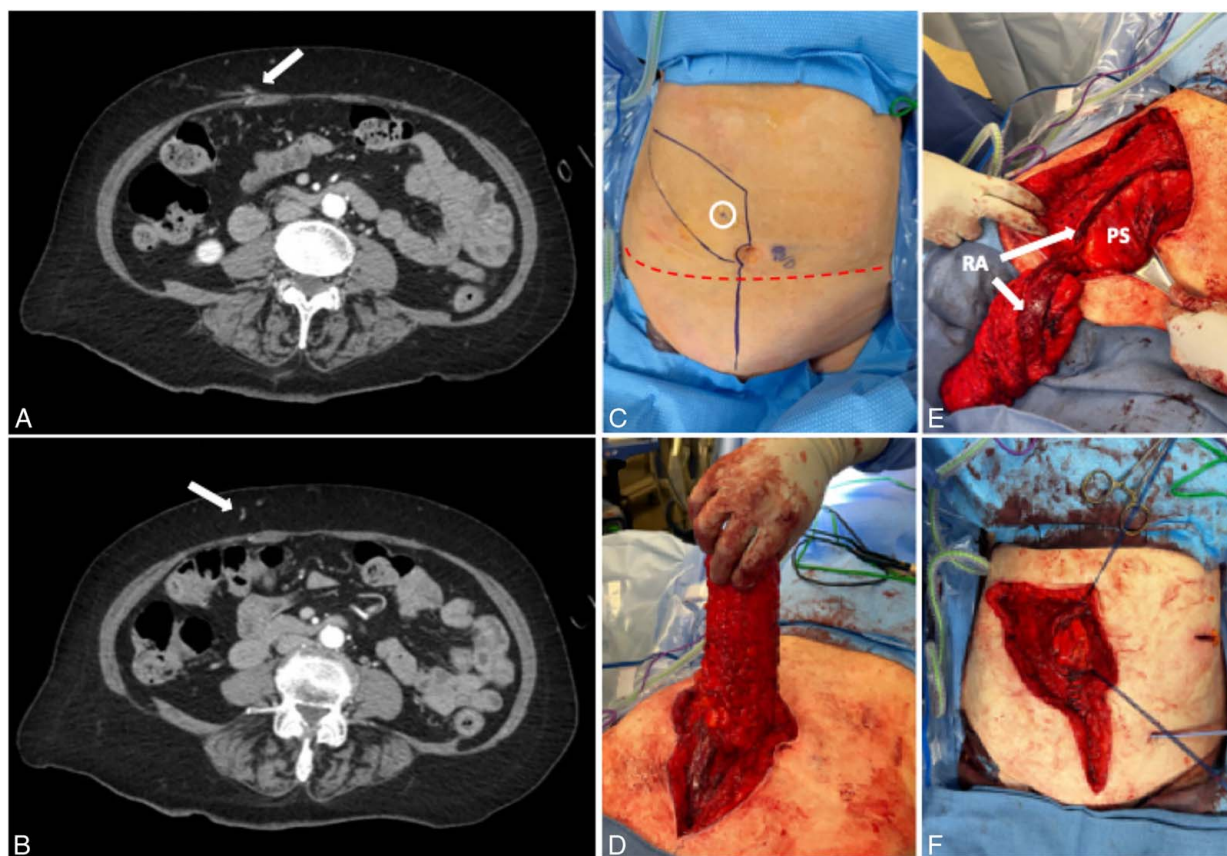


FIGURE 1. Preoperative planning and intraoperative dissection of the oblique rectus abdominis myocutaneous (ORAM) flap. A and B, Demonstrate the computed tomography visualized, large skin perforator on the right hemiabdomen (white arrow). This perforator was then easily appreciated by Doppler at bedside in the preoperative area and marked. C, Demonstrates the intraoperative skin markings of the Doppler signal (white circle) and ORAM skin paddle where the width is determined by primary donor site closure. The red dotted line marks the prior panniculectomy incision. D, Demonstrates the raised and de-epithelialized ORAM. E, The ORAM flap is reflected inferiorly to display the deep anatomy, cut aspect of the rectus abdominis (RA) and intact posterior sheath (PS). F, Displays Duramesh fascial closure of the laparotomy to minimize a future ventral wall hernia of the donor site.

anastomosis and abdominal washout was performed. The ORAM flap was then inset to compartmentalize the abdomen and pelvis and to prevent abdominal content access to the previous enterocele tract and subsequent reherniation. Two Jackson-Pratt drains were placed along the left rectus muscle and in the midline incision's subcutaneous space. Duramesh suture was used for laparotomy fascial closure, and her incision was closed (**Fig. 1F**).

Meanwhile, pelvic examination revealed a linear posterior vaginal wall defect in the craniocaudal plane spanning 1–4 cm cephalad to the level of her introitus, suggesting bowel herniation through the rectovaginal septum and the posterior vaginal wall (**Fig. 2A–D**). No recurrent vaginal prolapse was appreciated. Friable edges of the vaginal defect were trimmed and the rectovaginal space was packed with saline-reconstituted decellularized fish skin xenograft. The edges of the vaginal epithelium

were then reapproximated with 2-0 polyglactin followed by perineorrhaphy with 0 and 2-0 polyglactin.

Her postoperative course was uncomplicated. Her antibiotics were stopped POD 3, Foley catheter removed POD 5, and Jackson-Pratt drains removed POD 10. She was discharged home with home health services on POD 11.

She was doing well at follow-up visit 4 weeks following surgery. Her surgical sites were healing well with no prolapse recurrence appreciated. She ultimately declined scheduling any further follow-ups.

DISCUSSION

Any eviscerated contents should be dressed in saline-moistened gauze, and broad-spectrum intravenous antibiotics initiated. Baseline laboratory studies are



FIGURE 2. Intraoperative findings. A, vaginal evisceration, (B) resected bowel, (C) intact vaginal apex with epithelium disruption along distal posterior vaginal wall, (D) exposure of rectovaginal space. Star = prolapsed bowel, asterisk = vaginal canal, arrow = rectovaginal space.

recommended, with imaging indicated if there is suspicion for additional intraperitoneal concerns.^{3,6} Straightforward VDE cases with reducible bowel may be approached laparoscopically with bowel reduction, running of the bowel, and vaginal cuff repair, with consideration of flap-augmented repair being individualized.^{19,20} We ultimately opted for an open approach in our patient's case given her history and plans for ORAM flap placement, acknowledging there being a paucity of literature on ORAM flap use specifically with vaginal evisceration, whereas use of ORAM flap cousins have previously been described.^{21,22}

Interestingly, our patient's VDE involved bowel prolapsing through the distal posterior vaginal wall. Her clinical picture suggested likely distal enterocele progression to the level of the rectal reflection resulting in sensation of vaginal bulge recurrence followed by repeated Valsalva pressure applied to vaginal tissue already weakened by previous pelvic surgical, atrophy, and chemoradiation effects ultimately resulting in tissue failure. Given her prior apical and anterior vaginal incision lines, we felt a simple repair with site-specific flap (eg, Martius flap) may not be sufficient and that an ORAM flap would compartmentalize the abdomen and pelvis and physically prevent bowel from accessing the pelvis. Notably, she did not have any recurrence of prolapse of the vaginal tissues on examination.

We approached her pelvic reconstruction similarly to an abdominoperineal resection defect with the goal being to bring well-vascularized, soft-tissue bulk to the perineum to physically separate the bowel from inflamed pelvic tissues and to prevent recurrent herniation.^{22,23} The most commonly performed perineal reconstructions are either thigh-based flaps (the gracilis myocutaneous or profunda artery perforator fasciocutaneous flaps) or the abdominally based rectus abdominis myocutaneous flap.²² These are all referred to as regional pedicled flaps, meaning that soft tissues maintain their native vascular supplies upon which they are skeletonized for rotation into the defect. This patient's specific case represents a more complex example given her prior panniculectomy divided the inferior abdominal subcutaneous tissues from their native perforators through the rectus abdominis, rendering a vertical rectus abdominis myocutaneous flap impossible. However, an abdominally based reconstruction was still elected in this case given (1) the planned small bowel resection mandated a laparotomy,

(2) thigh-based flaps would require vaginal excision to tunnel the flap to the pelvis and are smaller, and (3) a large perforator into the superior abdominal subcutaneous tissues off the deep inferior epigastric artery could be visualized on CT upon which the flap was designed using an oblique skin paddle as opposed to a more standard vertical skin paddle given her surgical history (Fig. 2A–C).

We also utilized Duramesh, which is a macro-porous polypropylene mesh.²⁴ It is used in abdominal closures where its hollow core enables faster tissue integration, thereby decreasing the likelihood of suture pull-through to reduce postoperative hernia occurrence or wound dehiscence.^{25,26} Avoiding this complication was particularly critical given evidence of tissue attenuation elsewhere in our patient's case and partial right rectus fascial harvest required for creating the ORAM flap.

Lastly, we utilized a decellularized fish xenograft rather than an autograft or allograft for the vaginal portion. While its use for vaginal-related indications remains investigational, our reasoning was (1) desire for inducing tissue healing utilizing new blood supply from the nearby ORAM flap rather than rebuilding vaginal compartment support as done in a typical prolapse repair, (2) the graft's properties closely aligning with human tissue enabling application in perfusion-compromised areas, and (3) early data suggesting potential for product cost-effectiveness in wound healing applications.²⁷ In addition, it avoids often-encountered cultural and religious concerns precluding the use of many mammalian-tissue grafts. However, we acknowledge no robust data yet exist with which to counsel patients on long-term outcomes given the product's limited time on the market, limited demonstration within vaginal applications thus far, and VDE being a rare outcome.^{28,29}

Thus, early employment of multidisciplinary care should be considered for VDEs. Certain patients such as those with extensive pelvic surgical histories, multiple vulnerable vaginal incision lines, and histories of recurrent prolapse may benefit from consideration of flap placement and application of graft material for scar formation at the time of repair.

ARTICLE INFORMATION

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REFERENCES

1. Cronin B, Sung VW, Matteson KA. Vaginal cuff dehiscence: risk factors and management. *Am J Obstet Gynecol.* 2012;206(4):284–288. doi:10.1016/j.ajog.2011.08.026
2. Moen MD, Desai M, Sulkowski R. Vaginal evisceration managed by transvaginal bowel resection and vaginal repair. *Int Urogynecol J Pelvic Floor Dysfunct.* 2003;14(3):218–220. doi:10.1007/s00192-003-1056-1
3. Croak AJ, Gebhart JB, Klingele CJ, et al. Characteristics of patients with vaginal rupture and evisceration. *Obstet Gynecol.* 2004;103(3):572–576. doi:10.1097/01.AOG.0000115507.26155.45
4. Ginsberg DA, Rovner ES, Raz S. Vaginal evisceration. *Urology.* 1998;51(1):128–129. doi:10.1016/s0090-4295(97)00477-9
5. Keenan CS, Kim Y, Rogers C, et al. Severe vaginal evisceration at a military treatment facility. *BMJ Case Rep.* 2024;17(12):e259556. doi:10.1136/bcr-2023-259556
6. Matthews CA, Kenton K. Treatment of vaginal cuff evisceration. *Obstet Gynecol.* 2014;124(4):705–708. doi:10.1097/AOG.0000000000000463
7. Iaco P De, Ceccaroni M, et al. Transvaginal evisceration after hysterectomy: is vaginal cuff closure associated with a reduced risk? *Eur J Obstet Gynecol Reprod Biol.* 2006;125(1):134–138. doi:10.1016/j.ejogrb.2005.08.009
8. Lin FC, Medendorp A, Van Kuiken M, et al. Vaginal dehiscence and evisceration after robotic-assisted radical cystectomy: a case series and review of the literature. *Urology.* 2019;134:90–96. doi:10.1016/j.urology.2019.09.009
9. Minguez JA, Auba M, Diaz-Cobos D. Vaginal evisceration in a patient with previous sacrocolpopexy. *Int Urogynecol J.* 2011;22(12):1597–1599. doi:10.1007/s00192-011-1463-7
10. Kowalski LD, Seski JC, Timmins PF, et al. Vaginal evisceration: presentation and management in postmenopausal women. *J Am Coll Surg.* 1996;183(3):225–229.
11. Nezhat C, Burns MK, Wood M, et al. Vaginal cuff dehiscence and evisceration. *Obstet Gynecol.* 2018;132(4):972–985. doi:10.1097/AOG.0000000000002852
12. Behbehani S, Yi J. Vaginal cuff dehiscence mimicking pelvic organ prolapse. *J Minim Invasive Gynecol.* 2020;27(1):13–14. doi:10.1016/j.jmig.2019.05.001
13. Drudi L, Press JZ, Lau S, et al. Vaginal vault dehiscence after robotic hysterectomy for gynecologic cancers: search for risk factors and literature review. *Int J Gynecol Cancer.* 2013;23(5):943–950. doi:10.1097/IGC.0b013e31828f38e1
14. Uccella S, Ghezzi F, Mariani A, et al. Vaginal cuff closure after minimally invasive hysterectomy: our experience and systematic review of the literature. *Am J Obstet Gynecol.* 2011;205(2):119.e1–119.e12. doi:10.1016/j.ajog.2011.03.024
15. Uccella S, Zorzato PC, Kho RM. Incidence and prevention of vaginal cuff dehiscence after laparoscopic and robotic hysterectomy: a systematic review and meta-analysis. *J Minim Invasive Gynecol.* 2021;28(3):710–720. doi:10.1016/j.jmig.2020.12.016
16. Hur HC, Lightfoot M, McMillin MG, et al. Vaginal cuff dehiscence and evisceration: a review of the literature. *Curr Opin Obstet Gynecol.* 2016;28(4):297–303. doi:10.1097/GCO.0000000000000294
17. Peters A, Ali R, Miles S, et al. Two-layer compared with one-layer vaginal cuff closure at the time of total laparoscopic hysterectomy to reduce complications. *Obstet Gynecol.* 138. Lippincott Williams and Wilkins; 2021:59–65. doi:10.1097/AOG.0000000000004428
18. Ramirez PT, Klemer DP. Vaginal evisceration after hysterectomy: a literature review. *Obstet Gynecol Surv.* 2002;57(7):462–467. doi:10.1097/00006254-200207000-00023
19. Narducci F, Sonoda Y, Lambaudie E, et al. Vaginal evisceration after hysterectomy: the repair by a laparoscopic and vaginal approach with a omental flap. *Gynecol Oncol.* 2003;89(3):549–551. doi:10.1016/S0090-8258(03)00153-7
20. Frank GP, Rhemrev J, Westerterp M, et al. Recurrent vaginal cuff dehiscence after surgery for endometriosis: a technique for laparoscopic repair with an omental flap. *BMJ Case Rep.* 2021;14(3):e239540. doi:10.1136/bcr-2020-239540
21. Fraser A, Wagels M, Wong V, et al. The vertical rectus abdominis myocutaneous flap to manage vaginal evisceration. *J Obstet Gynaecol Can.* 2022;44(4):395–397. doi:10.1016/j.jogc.2021.11.006
22. Shahzad F, Ray E. Pelvic and perineal reconstruction. *Plast Reconstr Surg.* 2024;154(4):803e–816e. doi:10.1097/PRS.0000000000001137
23. Lee MJ, Dumanian GA. The oblique rectus abdominis musculocutaneous flap: revisited clinical applications. *Plast Reconstr Surg.* 2004;114(2):367–373. doi:10.1097/01.prs.0000131878.52740.ea
24. Dumanian GA, Tulaimat A, Dumanian ZP. Experimental study of the characteristics of a novel mesh suture. *Br J Surg.* 2015;102(10):1285–1292. doi:10.1002/bjs.9853
25. Souza JM, Dumanian ZP, Gurjala AN, et al. In vivo evaluation of a novel mesh suture design for abdominal wall closure. *Plast Reconstr Surg.* 2015;135(2):322e–330e. doi:10.1097/PRS.0000000000000910
26. Hackenberger PN, Mittal M, Fronza J, et al. Duramesh registry study: short-term outcomes using mesh suture for abdominal wall closure. *Front Surg.* 2023;10:1321146. doi:10.3389/fsurg.2023.1321146
27. Lantis J, Lullove E, Liden B, et al. Final efficacy and cost analysis of a fish skin graft vs standard of care in the management of chronic diabetic foot ulcers: a prospective, multicenter, randomized controlled clinical trial. *Wounds.* 2023;35(4):71–79. doi:10.25270/wnds/22094
28. Drozd A, Patel A, Chambers K, et al. Not so koi: fish skin allograft (Kerecis) for revision gender-affirming vaginoplasty. *Journal of Urology.* 2024;211(5S):e1045. doi:10.1097/01.JU.0001008824.92877.7f.11.
29. Hill DM, Hickerson WL, Carter JE. A risk-benefit review of currently used dermal substitutes for burn wounds. *J Burn Care Res.* 2023;44(Suppl 1):S26–S32. doi:10.1093/jbcr/irac131