

Beyond the Hernia Repair: A Review of the Insurance Coverage of Critical Adjuncts in Abdominal Wall Reconstruction

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Background: The prevalence of complex abdominal wall defects continues to rise, which necessitates increasingly sophisticated medical and surgical management. Insurance coverage for reconstructive surgery varies due to differing interpretations of medical necessity. The authors sought to characterize the current insurance landscape for a subset of key adjunctive procedures in abdominal wall reconstruction, including component separation and simultaneous ventral hernia repair with panniculectomy (SVHR-P) or abdominoplasty (SVHR-A), and synthesize a set of reporting recommendations based on insurer criteria.

Methods: Insurance companies were selected based on their national and state market share. Preauthorization criteria, preauthorization lists, and medical/clinical policies by each company for component separation, SVRH-P, and SVRH-A were examined. Coverage criteria were abstracted and analyzed.

Results: Fifty insurance companies were included in the study. Only 1 company had clear approval criteria for component separation, while 38 cover it on a case-by-case basis. Four companies had clear approval policies for SVHR-P, 4 cover them on an individual case basis, and 28 flatly do not cover SVHR-P. Similarly, 3 companies had clear approval policies for SVHR-A, 6 cover them case by case, and 33 do not cover SVHR-A.

Conclusions: Component separation and soft tissue contouring are important adjunctive AWR procedures with efficacy supported by peer-reviewed literature. The variability in SVHR-P and SVHR-A coverage likely decreases access to these procedures even when there are established medical indications. The authors recommend standardization of coverage criteria for component separation, given that differing interpretations of medical necessity increase the likelihood of insurance denials. (*Plast Reconstr Surg Glob Open* 2020;8:e3309; doi: [10.1097/GOX.0000000000003309](https://doi.org/10.1097/GOX.0000000000003309); Published online 16 December 2020.)

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INTRODUCTION

Abdominal wall reconstruction (AWR) is a catchall term used to describe complex hernia repairs that require tailored, multidisciplinary surgical management to address a disease process that includes the intestine, fascia, and soft tissue. Such repairs demand surgical expertise, time, and

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effort beyond what is required for a typical ventral hernia repair (VHR). For example, component separation (CS)¹ is a technique whereby myofascial advancement flaps are used to aid in achieving primary autologous myofascial closure and to access privileged anatomic surgical planes to improve mesh performance. CS, along with other pedicled muscle flaps of the trunk, has become a mainstay in the surgical management of complex ventral hernia due to its established efficacy in obtaining primary musculofascial reapproximation, which reduces recurrence and improves health-related quality of life.²⁻⁴ These procedures are often needed to repair large defects, but they are also useful in repairing small- to intermediate-sized primary defects with fibrosed, non-compliant surrounding tissue or defects that are adjacent to the xiphoid. The skill and time required to successfully, effectively, and reliably perform CS translates into improved outcomes in complex hernia patients.³⁻⁶ In addition, soft tissue contouring procedures such as panniculectomy and abdominoplasty, which are often viewed as cosmetic in nature, are increasingly performed in conjunction with complex intra-abdominal and gynecologic procedures, as they have been proposed to optimize surgical access and outcomes in certain repairs.⁷⁻¹³ A well-documented body of peer-reviewed evidence and clinical experience substantiate both the need and utility of said critical adjuncts as part of effective AWR.

While symptomatic ventral hernia is regarded as a medical issue that warrants insurance coverage, reconstructive adjuncts such as CS and soft tissue contouring may be viewed as unnecessary or cosmetic procedures, respectively, and thus often require insurance preauthorization. Navigating insurance preauthorization is a time-intensive, costly endeavor that has been shown to be a barrier to timely care for patients who require medically necessary treatments.¹⁴ In the realm of insurance for reconstructive procedures, “medical necessity” is a term used to describe the clinical criteria that must be met for a procedure to be considered essential, but studies^{15,16} have showed wide variability in the way medical necessity is defined by insurance companies. While previous studies have examined the insurance landscape for body contouring procedures in the post-bariatric population,^{15,16} none have examined insurance coverage for CS and soft tissue contouring in the setting of AWR. This study aimed to qualify current insurance policies on simultaneous VHR with CS, panniculectomy (SVHR-P), and abdominoplasty (SVHRP-A). A literature review was conducted to assess whether insurance policies are well aligned with clinical evidence and best care practices for patients, in an effort to improve access to procedures for patients.

METHODS

A list of 50 insurance companies was developed based on the state enrollment data¹⁷ and the National Association of Insurance Commissioners 2018.¹⁸ Medicare and Medicaid policies are variable by state; therefore, they were included only if consistency in coverage patterns was observed.

For each procedure, an online search was first conducted for publicly available medical/clinical policies,

followed by preauthorization lists. Medical/clinical policies are publicly available documents that payors publish to inform providers about general coverage policies for a number of procedures. These documents often outline the conditions under which a procedure is deemed medically necessary, while providing a set of reporting recommendations to facilitate prior authorization. A summary of the literature used to support their coverage policies is occasionally provided. If a medical/clinical policy was not found, the authors searched for publicly available preauthorization lists. These documents list the current procedural terminology (CPT) codes that require preauthorization, but do not mention the granular approval criteria.

Searches were first conducted on payor websites using terms such as “hernia,” “ventral hernia,” “CS,” “muscle flap,” “panniculectomy,” and “abdominoplasty.” Searches for “cosmetic” and “reconstructive” surgery policies were also conducted. Relevant CPT codes for initial VHR (49560), recurrent VHR (49565), CS (15734), panniculectomy (15830), and abdominoplasty (15847, used as an add-on code to 15830) were also used to help guide search. Data on coverage, medical necessity criteria, reporting recommendations, and approved indications were abstracted and analyzed from the aforementioned documents.

Payors that had medical/clinical policies with clear coverage criteria for CS were analyzed for specific preapproval criteria. If policies were not found for CS, companies that require prior authorization for reconstructive surgical procedures were considered to require case-by-case approval for myofascial abdominal flaps CS, as muscle flaps are considered reconstructive procedures. Payors with no CS or reconstructive surgery policies were considered to have no online policy.

Each panniculectomy and abdominoplasty clinical policy was queried for their policy on SVHR-P/SVHR-A. Payors that had clear criteria for coverage were analyzed for their preapproval criteria. Payors were given case-by-case status if they mentioned that SVHR-P/SVHR-A would be covered under special circumstances that were not clearly identified in the policy. Payors that used general statements to deny coverage (such as “abdominoplasty is always considered cosmetic”) were considered to never approve the mentioned procedure. The most commonly mentioned indications for SVRH-P were abstracted from the medical necessity documents and analyzed.

A literature review of PubMed was conducted. A search syntax strategy was devised using keywords pertaining to CS, ventral hernia repair, panniculectomy, and postoperative outcomes. Specifically, Boolean operators AND/OR were used to combine the following search words: “component separation,” “anterior component separation,” “posterior component separation,” “ventral hernia,” “incisional hernia,” “panniculectomy,” “abdominoplasty,” and “outcomes.” Titles and abstracts of search results were screened for relevance. Comparison studies within CS (ex. Open versus laparoscopic, mesh versus no mesh) were not included. Of the remaining results, selected highly cited articles for anterior/posterior CS and SVHR-P/SVHR-A

were included for full review. Data were compiled and analyzed in Microsoft Excel (Microsoft Corp., Redmond, Wash.).

RESULTS

Thirty-nine payors (78%) were found to have online policies for CS. All payors with policies provided coverage for CS, but the vast majority (N = 38, 97%) provided case-by-case coverage without clear coverage criteria. (See figure, Supplemental Digital Content 1, which displays coverage of component separation in AWR. <http://links.lww.com/PRSGO/B530>.)

Only 1 payor (BCBS Regence) had a clearly stated policy for approval: CS is covered if used in a recurrent VHR or in an initial VHR of an abdominal defect >10 cm. Payors that had case-by-case coverage for CS made coverage determinations based on vague terminology about what constituted medically necessary “reconstructive” versus “cosmetic” surgery. Cosmetic surgery was often defined as a procedure that improved appearance without improving function.

Fifty payors (100%) have policies on panniculectomy, the results of which have been previously analyzed by Ngaage et al.¹⁵ Forty companies (80%) were found to have online policies for SVHR-P. The majority of payors did not cover SVHR-P (N = 30, 75%), while 6 payors (15%) covered SVHR-P on a case-by-case basis and 4 (10%) had clear approval criteria. (See figure, Supplemental Digital Content 2, which displays coverage of SVHR-P in abdominal wall reconstruction. <http://links.lww.com/PRSGO/B531>.)

Approved/denied indications and reporting criteria were highly variable between payors. These included improvement of surgical exposure (N = 17, 42.5%), prevention of hernia formation/recurrence (N = 12, 30%), and improvement in post-operative wound healing (N = 6, 15%). Three payors cover SVHR-P when used to optimize surgical exposure in VHR, while 16 payors denied this indication. Of the 12 payors that mentioned SVHR-P for prevention of hernia recurrence/formation, only 1 payor approved this indication, while 11 denied it. Three payors approved SVHR-P for post-operative wound healing, while 3 payors denied SVHR-P for this indication (Table 1).

Forty-three payors (86%) were found to have online policies for SVHR-A. (See figure, Supplemental Digital Content

3, which displays coverage of SVRH-A in abdominal wall reconstruction. <http://links.lww.com/PRSGO/B532>.)

The majority of payors will not cover SVHR-A (N = 33, 77%). Six payors (14%) covered SVHR-A on a case-by-case basis, and 3 payors (7%) had preapproval criteria. A subset of payors (8, 16%) provided reporting recommendations to discern a true ventral hernia from diastasis recti. The included policies state that such information helps distinguish a VHR from a purely cosmetic abdominoplasty. Variables such as hernia size, hernia reducibility, and presence of fascial defects, among others, were consistently cited (Table 2). The most common reason for denial of SVHR-A was classification of all abdominoplasty cases as cosmetic (N = 25, 76%). Other payors either considered the procedure to be experimental or did not mention a reason for denial at all (Table 3).

DISCUSSION

Complex VHR remains a challenge, requiring advanced and multidisciplinary expertise. A combination of factors, such as hernia-related anatomic variation, medical comorbidities, wound characteristics, and prior surgical history (including previous hernia repair and mesh use), make each patient profile unique and perhaps no 2 repairs alike. Therefore, the ideal surgical approach to provide a stable reconstruction of the abdominal wall is highly variable, requiring customized, patient-specific interventions. CS and SVHR-P/SVHR-A are critical adjuncts in a reconstructive surgeon’s armamentarium used to optimize outcomes in complex VHR. To identify potential barriers to best practices, the present study sought to characterize insurance coverage patterns for these procedures. For CS, payors were found to uniformly cover the procedure as a subset of reconstructive surgery, but reporting recommendations were rarely described. For SVHR-P/SVHR-A, the majority of payors deemed both as medically unnecessary. Overall, despite well-documented evidence supporting the clinical benefit of these procedures, coverage policies remain vague and/or insufficient, which may obstruct access to these medically indicated procedures. There is a need for payors to outline transparent and flexible coverage criteria for CS and SVHR-P/SVHR-A, respectively, that adequately reflect their utility in achieving optimal management of complex hernias.

CS has become a mainstay of AWR due to its efficacy in achieving primary fascial closure. A systematic review

Table 1. Approval and Denial Trends by Indication

Indication	Coverage Status	No. Companies (%)
Prevention of hernia formation/recurrence	Approved indication	1 (2%)
	Denied	9 (18%)
	Experimental/investigational No explanation	2 (4%)
Enhance exposure in surgery	No specific policy	38 (78%)
	Approved indication	3 (6%)
	Denied	9 (18%)
	Experimental/investigational No explanation	7 (14%)
Optimize post-operative wound healing	No specific policy	31 (62%)
	Approved indication	3 (6%)
	Denied	3 (6%)
	Experimental/investigational No explanation	0 (0%)
	No specific policy	44 (88%)

Table 2. Summary of Reporting Recommendations for VHR When in Conjunction with Panniculectomy to Help Differentiate from Purely Cosmetic Abdominoplasty

Insurance Provider	Hernia Characteristics					
	Size	Reducible	Pain/Other Symptoms	Diastasis	Fascial Defect	Fascial Defect Size
Aetna	Y	Y	Y	Y	Y	Y
BCBS KC	Y	Y	Y	Y	Y	Y
BCBS KS	Y	Y	Y	N	Y	N
BCBS Regence	N	Y	Y	N	Y	N
GEHA	Y	Y	Y	Y	Y	Y
Highmark	Y	Y	Y	N	N	N
Priority Health	Y	Y	Y	Y	Y	Y
Ucare Grp	Y	Y	Y	Y	Y	Y
Totals	7/8	8/8	8/8	5/8	7/8	5/8

Y, reporting criteria required; N, reporting criteria not required.

Table 3. Denial Breakdown for SVHR-A

Reason for Denial	No. Companies (%)
Always considered cosmetic	25 (76%)
Experimental/investigational	2 (6%)
Not mentioned	6 (18%)

by Holihan et al. demonstrates dramatically improved outcomes, including lower rates of hernia recurrence and lower surgical site occurrences when CS is used as opposed to bridged repairs in large ventral hernias.¹⁹ These data are further supported by a single center series of 775 complex AWRs, where a lack of fascial closure increased the risk of long-term recurrence by 5-fold and wound complications by 3 times.³ By releasing select fascial attachments of the abdominal musculature and creating a pedicled muscle flap, CS increases the compliance and surface area of the abdominal wall, which facilitates primary fascial closure of large defects that cannot otherwise be closed primarily.²⁰ A number of other studies have also shown that CS decreases recurrence in recurrent VHR. Table 4 summarizes a number of studies on the use of CS in large, complex hernia defects,^{21–30} demonstrating recurrence rates between 0% and 22% and surgical site infection rates between 8% and 28%. While wound complications are a significant concern in obese patients undergoing CS, endoscopic and perforator preserving approaches have been associated with fewer wound complications.¹⁹ Overall, CS has become a cornerstone of the reconstructive surgeon’s arsenal for AWR due to its efficacy, versatility, and applicability.¹²

Evidence for the broad adaptation of SVHR-P and SVHR-A is currently lacking, but in certain complex hernia cases, they may optimize surgical outcomes. Studies have shown that SVHR-P improves surgical access, decreases postoperative strain, and increases patient satisfaction.^{8,9,31} In addition, a panniculus confers increased susceptibility to a number of skin conditions, including chronic dermatitis and intertrigo,⁹ which may interfere with post-operative wound care. Finally, the combination of 2 operations may conserve hospital resources and decrease overall time under anesthesia. Nonetheless, a number of studies have shown that SVHR-P and SVHR-A are each associated with increased post-operative wound complications, as shown in Table 5.^{9,32–35} Studies by Fischer et al,⁸ Warren et al,⁹ and Ross et al,³⁶ found that patients who underwent

SVHR-P had a higher incidence of short-term surgical site occurrences (SSI, hematoma, seroma, etc.) in comparison with patients who underwent VHR alone. A study by Diaconcu et al. has confirmed the higher rates of surgical site occurrences found by the aforementioned studies, but interestingly added that there was no difference in surgical site occurrences requiring procedural interventions.³⁴ Notably, a recent study by Elhage et al. found that the higher wound complication rate in patients who underwent AWR with panniculectomy versus AWR alone was attributable to a higher rate of superficial wound breakdown, but that more debilitating wound complications (such as dehiscence, infection, cellulitis, and fistula formation) were similar between groups.³⁷ Importantly, the group that underwent AWR with panniculectomy had greater risk factors for wound breakdown such as higher body mass index, more prior hernia repairs, and higher rates of CS.³⁷ These findings further support the safety profile of SVHR-P and SVHR-A in regard to wound complications.

The aforementioned studies analyze the safety of SVHR-P, but their clinical application is limited by their retrospective nature and a lack of long-term follow-up. A prospective trial by Moreno-Egea et al. found that SVHR-A improves both short-term and long-term quality of life without adding morbidity to incisional hernia repairs.³⁸ In addition, a study by Shubinetz et al. found that despite increased short-term complications and healthcare costs in comparison with patients undergoing VHR alone, patients who underwent SVHR-P had significantly lower rates of recurrence at 2-year follow-up.³⁵ In the right patient population, soft tissue contouring, such as SVHR-P and SVHR-A, is an effective and, in some cases, essential reconstructive adjunct in AWR.

The need for flexible insurance policies for CS and soft tissue contouring is readily apparent when analyzing their use in complex hernia presentations. For example, patients who present with loss of domain are a significant surgical challenge. Loss of domain describes a ventral hernia large enough such that simple reduction of its contents and primary fascial closure either cannot be achieved without additional reconstructive techniques or cannot be achieved without significant risk of complications due to the increased intra-abdominal pressure.³⁹ This often occurs in patients who recover from intra-abdominal

Table 4. Literature Review of Outcomes of CS

Study	LOE	CS Technique	N	Defect Size (cm ²)	Mesh Position	Mesh Material	Wound Characteristics	Mean Follow-up	Recurrence	SSI	Other Outcomes
Krpata et al 2012	II	ACS	55	531.0 ± 324.3	Underlay	83.9% biologic, 16.1% synthetic	21.4% mesh infection at time of surgery	9.1 mo	14.30%	—	19.6% major complications, 28.6% minor complications
Krpata et al 2012	II	PCS	56	471.5 ± 229.9	Underlay	25.5% biologic, 74.5% synthetic	7.3% mesh infection at time of surgery	6.8 mo	3.60%	—	10.9% major complications, 14.5% minor complications
Appleton et al 2017	II	TAR (PCS)	12	—	Underlay	75% biologic, 17% synthetic, 8% bioabsorbable Biologic	92% VHWG 3 or 4	24 mo	0%	8.3%	8.3% seroma, 8.3% small bowel obstruction
Fayezizadeh et al 2016	II	TAR (PCS)	77	306 ± 128	RM	—	90% VHWG 3, 10% VHWG 2, 8% CDC 1, 34% CDC 2, 32% CDC 3, 26% CDC 4	28.2 mo	12.50%	28%	42.9% surgical site events
Posielski et al 2015	II	TAR (PCS)	32	760.1 ± 311.0	RM	Synthetic	84% CDC 1, 13% CDC 2, 3% CDC 3	9.0 mo	6.30%	12%	6.3% wound dehiscence, 3.1% seroma, 3.1% suture abscess
Petro et al 2015	II	TAR (PCS)	34	431 ± 207	RM	44.1% biologic, 55.9% synthetic	38.2% clean, 61.8% contaminated	18.0 mo	14.70%	23%	35.3% SSO
Pauli et al 2015	II	TAR (PCS)	29	410 ± 283	RM	17% biologic, 24% synthetic	62% CDC 1, 3% CDC 2, 28% CDC 3, 7% CDC 4	11 mo	3%	28%	45% SSO
Giroto et al 2003	II	ACS	96	—	Onlay	Synthetic	—	26 mo	22%	27%	—
Jin et al 2007	II	ACS	22	—	Onlay 77%, Underlay 18%, 5% sandwich	Biologic	—	21.4 mo	13.6%	—	—
Espinosa-de-los-Monteros et al 2007	II	ACS	39	166	Overlay	Biologic	—	15 mo	5%	—	26% local complications
Diaz et al 2009	II	ACS	31	201 ± 155	Inlay, onlay, interposition	—	—	10.5 mo	6.50%	41.9%	6.5% fistula formation

ACS, anterior component separation; CDC, Center for Disease Control wound class; LOE, level of evidence; PCS, posterior component separation; RM, retromuscular; SSI, surgical site infection; SSO, surgical site occurrence; TAR, transversus abdominis release.

Table 5. Literature Review of Outcomes of SVHR-P

Study	LOE	N	Defect Size (cm ²)	Mesh Position	Mesh Type	CS (%)	Mean Follow-up	Recurrence	SSI
McNichols et al 2018	II	106	225	49 onlay, 10 inlay, 10 underlay, 7 sandwich	71% biologic, 29% synthetic	68%	373 d (6–2884)	21.70%	36.80%
Hutchison et al 2019	II	24	233.6	12.5% intraperitoneal, 8% onlay, 16% retromuscular, 12.5% no mesh	17% biologic, 33% synthetic, 37.5% biosynthetic	45.83%	25.5 mo	17%	29%
Diaconu et al 2019	III	122	142	63% onlay, 11% inlay, 17% underlay, 8% sandwich	69% biologic, 12% synthetic, 20% no mesh	65%	197 d	23%	13%
Shubinets et al 2017	II	1013	N/A	N/A	N/A	N/A	2 y	7.90%	5.60%
Warren et al 2015	II	43	130.7	74.% retromuscular, 11.6% PP, 4.6% onlay, 6.9% intraperitoneal, 2.3% none	100% synthetic	44%	11.4 mo	11.60%	16.30%

ACS, anterior component separation; CDC, Center for Disease Control wound class; CS, component separation; LOE, level of evidence; PCS, posterior component separation; RM, retromuscular; SSI, surgical site infection; SSO, surgical site occurrence; TAR, transversus abdominis release.

sepsis, as their abdomen is left open to optimize source control and they develop large ventral hernias. CS is essential for these patients because they require extra tissue advancement to achieve primary fascial closure in their large defects. Soft tissue status also plays a major role in the approach to AWR. The benefits of an extirpative soft tissue procedure such as a panniculectomy is evident in hernias, where the panniculus prohibits effective access for repair (Fig. 1) or in those where extensive scarring from prior abdominal surgeries (Fig. 2) would compromise effective wound healing.^{11–13} Additionally, many patients with complex hernia require tailored wound closures, as prior surgeries render their skin and soft tissue thin, scarred, and atrophic. For example, a “reverse” panniculectomy, or a lower thoracic/upper abdominal advancement flap, may

be used to close upper abdominal hernias with poor skin/soft tissue coverage.

Lack of standardization and inadequate reimbursement policies represent a significant burden for providers, hospitals, and insurers when managing the significant operative costs of VHR. “Medical necessity” is notoriously hard to determine, and according to a paper by Haavi Moreim, problems with medical necessity include its “legal vagueness, clinical artificiality, and its unreliability and restrictiveness for consumers.”⁴⁰ Prior studies have examined insurance coverage for post-bariatric body contouring,^{15,16,41} gender reaffirming surgery,^{42,43} and reduction mammoplasty,⁴⁴ finding inconsistencies in panniculectomy coverage criteria between insurance companies and American Society of Plastic Surgeons (ASPS)

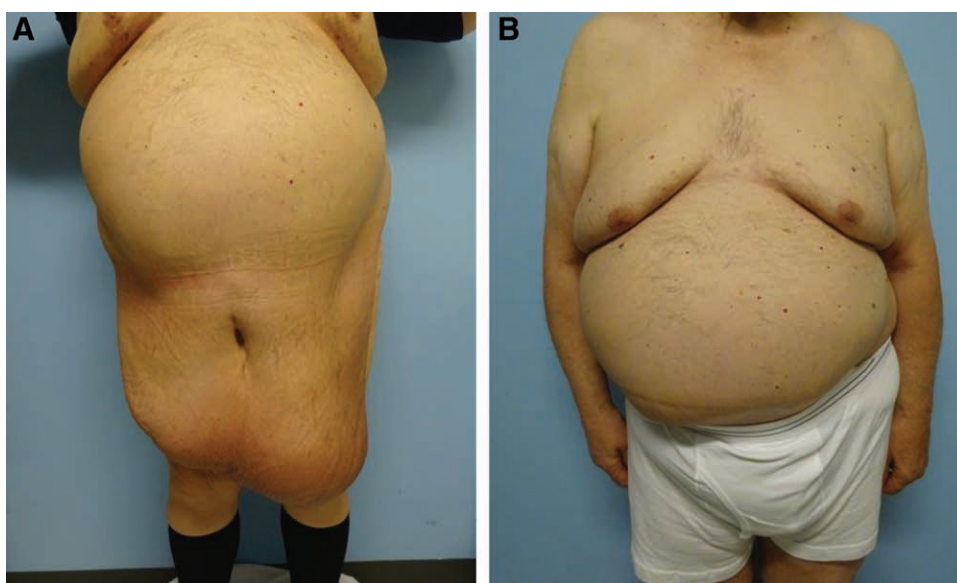


Fig. 1. The patient presented with a ventral hernia that protruded into his panniculus, necessitating SVHR-P. A, Preoperative photograph demonstrating extent of ventral hernia and panniculus. B, Patient had AWR, with successful reduction of the hernia sac and restoration of abdominal contour.

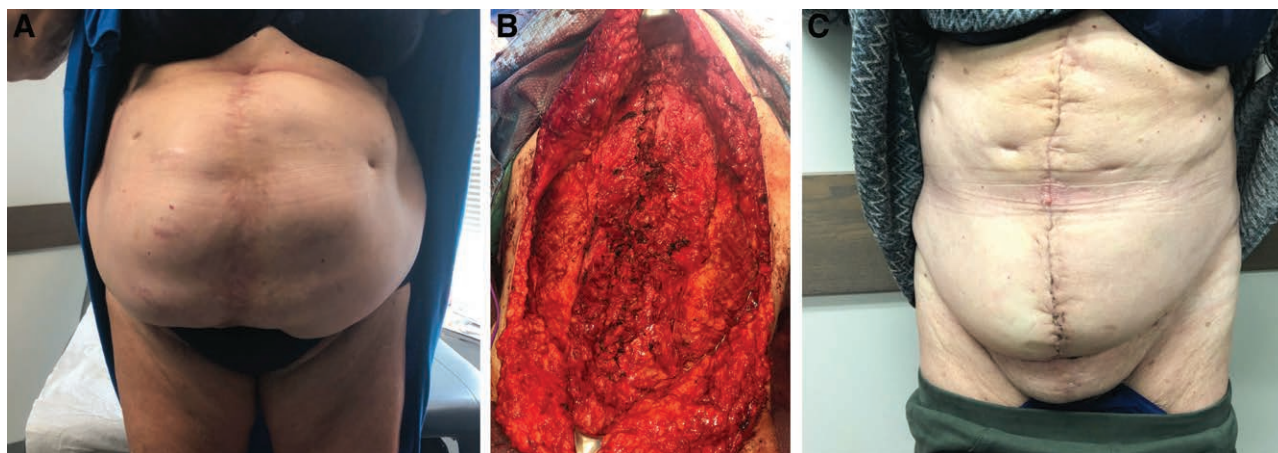


Fig. 2. The patient presented with complex hernia and extensive abdominal scarring secondary to prior hernia repairs. A, Preoperative photograph demonstrating suboptimal skin scarring and abdominal contour. B, Intraoperative photograph showing the extent of the hernia defect and the low quality of the existing fascia. Patient required AWR with component separation (to aid in primary fascial closure) and soft tissue contouring (to aid with postoperative wound healing). C, The patient’s abdominal wall was successfully reconstructed with the necessary adjuncts of component separation and soft tissue contouring.

recommendations, higher rates of coverage for transmasculine chest surgery in comparison with transfeminine breast augmentation, and higher emphasis on resection weights in comparison with patient symptoms, respectively. These idiosyncrasies in insurance coverage significantly alter medical practice and similarly play a major role in ventral hernia care.

This study highlights the need for a flexible and robust reimbursement system for CS and soft tissue contouring based on factors that add complexity to AWR. Like many reconstructive procedures, AWR requires both pre-operative and intra-operative adaptability to optimize results. Indications for CS and soft tissue contouring lie at the intersection of complex AWR; therefore, we propose that a host of hernia and soft tissue factors, as summarized by Slater et al⁴⁵ (Table 6), that add complexity to AWR should be taken into consideration for coverage of reconstructive adjuncts. Ventral hernia repairs that cannot be closed primarily should be considered for insurance coverage of CS. These include large hernias (>10 cm), small- to intermediate-sized (<10 cm) hernias with fibrosis, sub-xiphoid hernias, recurrent hernias with previously failed suture and/or mesh repair, full thickness abdominal wall defects secondary to trauma or abdominal wall resections, or loss of domain. For SVHR-P, ventral hernias with extensive

skin scarring, soft tissue defects, or an adjacent panniculus should be considered for insurance coverage (Fig. 3). From a provider perspective, documentation of the reasoning behind anticipating the need for CS and soft tissue contouring is essential to convey the complexity of the repair at hand.

Although CS and soft tissue contouring have their merits in the right patient population, we must acknowledge that not all patients are suitable candidates for these procedures. By providing a flexible but standardized framework for coverage, payors and providers will benefit alike, as inappropriate insurance requests that consume immense resources will decrease. Standardization based on the aforementioned criteria will serve to increase access to patients who require medically necessary surgery while decreasing false claims. It must also be mentioned that code reform may better address the gap in insurance coverage. SVHR-P lies at the intersection of panniculectomy and complex wound closures, and as such, a new code based on the complexity of soft tissue reconfiguration in SVHR-P may lead to more defined and consistent coverage of the procedure.

This study is not without its limitations. Our interpretation of online insurance coverage policies may have underestimated or overestimated coverage in various

Table 6. Characteristics of Complex Hernia Adapted from Slater et al

Size and Location	Contamination and Soft Tissue	History and Risk Factors	Clinical Situation
≥10-cm width	ASA Wound Class III or IV	Recurrent, prior mesh, prior component separation	Emergency
Parastomal, lumbar, lateral, and subcostal locations of hernia	Full-thickness abdominal wall defects	Risk factors for wound healing (ie, obesity, T2DM, age)	Intra-peritoneal mesh removal
Loss of domain ≥20%	Distorted anatomy	Increase intra-abdominal pressure	Multiple defects
Denervation	Other: skin grafts, wound ulcers/non-healing, open abdomen, disease-related, enterocutaneous fistula	Prior wound dehiscence Prior mesh infection	Component separations

ASA, American Society of Anesthesiologists; T2DM, type 2 diabetes mellitus.

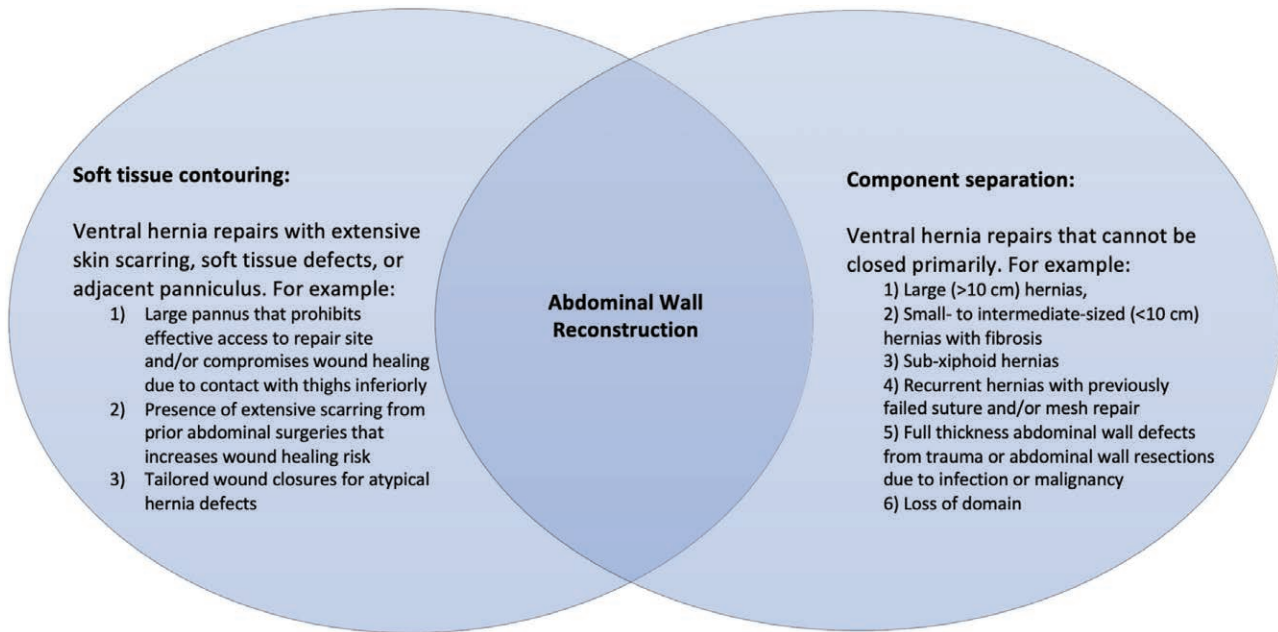


Fig. 3. Indications for soft-tissue contouring and component separation procedures in abdominal wall reconstruction.

circumstances, as, for example, reconstructive surgery policies were used as a proxy for case-by-case CS coverage. In addition, it is likely that payors do not cover SVHR-P and SVHR-A, as the literature is highly variable and difficult to broadly apply. Finally, we focused on general coverage policies of payors, but specific coverage may differ from plan to plan within each insurance company.

CONCLUSIONS

As complex hernia rates increase, insurance coverage patterns for adjunct procedures to the definitive repair need to be reexamined. While CS is often covered by payors, a lack of publicly available and standardized coverage criteria burdens the prior authorization process. Meanwhile, most payors do not cover SVHR-P/SVHR-A, and those that do have highly variable coverage criteria. Inconsistent policies increase the likelihood of insurance rejections due to differing interpretations of medical necessity. The authors recommend standardization of flexible coverage criteria for CS and SVHR-P/SVHR-A based on complex hernia characteristics to better address the heterogeneity of complex hernia repair requirements.

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