Surgical Recommendations in Ehlers-Danlos Syndrome(s) Need Patient Classification: The Example of Ehlers-Danlos Syndrome Hypermobility Type (a.k.a. Joint Hypermobility Syndrome)

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Dear Sir,

I read with great interest the work by Burcharth and Rosenberg [1] (Herlev, Denmark) on surgical aspects of Ehlers-Danlos syndrome(s) (EDSs). In this work, the authors review 53 previously published papers, summarize indications and complications by anatomic structure, and define some practical recommendations for improving outcomes of skin closure after surgical incisions. Their work is definitely of invaluable support in the daily practice of many professionals involved in the management of hereditary connective tissue disorders.

However, the extreme clinical variability and genetic heterogeneity of EDSs represent a major limit to such generalizations. In fact, as stated by the authors themselves in the first paragraph of their paper, EDS actually groups together an increasing number of genetic disorders sharing various degrees of generalized joint hypermobility and some cutaneous and soft tissue features, but with differences in the spectrum of ancillary findings and the molecular basis. Such discordance impacts prognosis which diverges significantly among clinical subtypes. Accordingly, it has not been emphasized enough that most papers included in the work by Burcharth and Rosenberg report patients with the vascular type of EDS (or EDS type IV) or who show less characterized phenotypes and/or are described before the publication of the present classification [2]. The degree of soft tissue, skin and vascular fragility varies among the three most common subtypes of EDS, namely classic, hypermobility (EDS-HT) and vascular types. Therefore, it is reasonable that surgical risks are not the same among these variants.

In particular, EDS-HT is probably the most common EDS subtype [3] and likely represents one and the same disorder as the joint hypermobility syndrome (JHS) [4]. Therefore, it is reasonable that JHS/EDS-HT is the EDS form most frequently encountered in many surgery subspecialties, except perhaps in vascular and chest clinics. Not many data have been published concerning surgical aspects of JHS/EDS-HT. In contrast to vascular EDS in which surgery is typically associated with high risks, daily practice indicates that preventive contraindication to surgery is not a feature of JHS/EDS-HT. Nevertheless, a series of recently accumulated evidence and anecdotal reports depicts an extraordinarily complex pathophysiology of JHS/EDS-HT, which extends much beyond the involvement of the integumentary and musculoskeletal systems. Accordingly, many factors may influence the outcome of surgical and anesthetic procedures and should be considered during treatment planning. Table 1 summarizes available data and the ensuing recommendations in JHS/EDS-HT.

I hope that this additional information will help to offer a more tailored surgical approach for patients affected by the JHS/EDS-HT subtype. It is expected that future studies will improve our knowledge on the widespread consequences of JHS/EDS-HT, as well as other major EDS subtypes, in order to select more efficient and personalized management interventions.

Disclosure Statement

The author has no conflict of interest to disclose.

Table 1. Surgical and anesthetic recommendations in the JHS/EDS-HT

Evidence	Ref No.	Recommendation
<i>Surgical procedure</i>		
(1) Orthopedic surgery is paradoxically associated with pain worsening in JHS/EDS-HT; anecdotal observations suggest a low success rate for abdominal surgery in functional disorders	5	Consider more conservative treatments as an alternative to non-life-threatening operations
(2) Although soft tissue fragility is not severe in JHS/EDS-HT, delayed wound healing with consequent suture widening, suture dehiscence and postsurgical hernias are possible complications	1, 6	(a) Perform skin closure in two layers (cutaneous and subcutaneous) without excessive tension (b) Use generous sutures, deep stitches and steri-strips as reinforcement devices (c) Leave sutures twice as long as normally recommended
(3) Minor bleeding disorders are common in JHS/EDS-HT	7	Consider preoperative prophylaxis with desmopressin (1-deamino-8-D-arginine vasopressin), especially in patients with a positive history for mucosal bleeding (nose, gingivae, bowel, bladder, etc.) and/or easy bruising
(4) Episiotomy is associated with an increased risk for pelvic prolapses in JHS/EDS-HT women	8	Consider cesarean section as first-choice delivery procedure
<i>Anesthetic procedure</i>		
(5) Dysautonomia is a major feature in JHS/EDS-HT and may need special anesthetic considerations	9	(a) Consider to carry out appropriate investigations (e.g. tilt test) before any intervention in order to properly plan the anesthetic procedure, especially in patients with cardiovascular symptoms (b) In case of confirmed dysautonomia, consider prophylactic early fluid loading and phenylephrine infusion
(6) JHS/EDS-HT patients often display resistance to intradermal lidocaine infiltrations and topical EMLA cream	10, 11	Consider alternative anesthetic procedures or double the anesthetic dose
(7) Epi/peridural anesthesia may be hampered by severe spondylosis and/or scoliosis, and could be complicated by intraspinal hypotension due to increased meningeal weakness in JHS/EDS-HT	None ¹	Favor total anesthesia in case of major surgery
(8) Temporomandibular joint dysfunction and occipitoatlantoaxial instability may be more common in JHS/EDS-HT	13, 14	Perform intubation with care and consider the use of pediatric devices also in adults
<i>Postsurgery recovery</i>		
(9) Muscle deconditioning due to inactivity rapidly worsens chronic pain and fatigue in JHS/EDS-HT	15	Consider early physical therapy support in case of surgery with postoperative bed rest for >7 days

¹ Reports specifically describing such likely complications are lacking. However, mild scoliosis and premature spondylosis are commonly encountered in the JHS/EDS-HT clinic, while some preliminary studies indicate that generalized joint hypermobility is associated with orthostatic headache [12].

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