Predicting wound complications following plastic surgeon closure of spine surgeries

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Introduction: Spine surgeries continue to grow in popularity, recently increasing by more than 200% in a decade.[1] At our institution, plastic surgeons frequently assist spine surgeons with wound closures of index spine procedures. In anticipation of this becoming a more common practice nationwide, the authors sought to determine risk factors for wound complications in this setting.

Methods: Spine surgeries closed by a single plastic surgeon at a large academic hospital were reviewed. Patients 18 years or younger, with invasiveness indices of zero,[2] current wound infections, or undergoing surgery for management of complications from prior procedures were excluded. Factors significantly associated ($p<0.05$) with wound complications on univariate analysis were included in a regression model.

Results: Seven hundred eight procedures were done. Twenty-one patients had any wound complication, including 2 superficial infections, 5 deep infections, 3 dehiscences, 4 seromas, and 7 hematomas. Patients undergoing cervical surgery were less likely to have a wound complication (OR 0.39, 0.14-1.09). Patients requiring intra-operative blood transfusion (OR 3.42, 1.29-9.08) and with ASA ≥3 (OR 4.68, 1.70-12.92) were more likely to have a wound complication. Surgical time was longer (266±141 versus 196±97 minutes, $p=0.009$) and estimated blood loss higher (1063±1032 versus 615±786 mL, $p=0.021$) among patients suffering wound complications. Invasiveness index was not associated with wound complications (0.711). In a multivariate logistic regression controlling for EBL, operative time, ASA status, and intra-operative transfusion, only ASA status of 3 or greater predicted complications ($p=0.005$). Cervical surgeries were associated with fewer wound complications on multivariate analysis (OR 0.29, 0.09-0.92).

Conclusions: Contrary to papers in the spine literature that have found operative duration, diabetes, hypertension, and age, among other risk factors, predictive of complications, we found that only ASA status of ≥3 was associated.[3,4,5] This may reflect a lack of power, as the ASA classification aggregates comorbidities and BMI. Patients at increased risk for complications should be managed more aggressively, including prophylactic local muscle flap closure where appropriate.

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