Refractory Epistaxis: Risk Factors for Recurrent Bleeding after Embolization Following SPA Ligation

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Abstract

Background: Sphenopalatine artery (SPA) ligation poses a viable and historically successful surgical option for treatment of recurrent epistaxis refractory to conservative management and treatment. There is little published data analyzing the risks factors believed to be responsible for recurrent bleeding in those patients who fail SPA ligation and subsequent embolization.

Objectives: To assess risk factors for recurrent bleeding among those patients who failed SPA ligation followed by embolization for management of refractory epistaxis.

Study Design: Retrospective chart review.

Subjects and Methods: Baseline demographic data, previous medical management, comorbidities, risk factors, anticoagulation status, and angiography/embolization procedure details were collected between June 2015 – August 2020 on patients undergoing embolization following a failed SPA ligation for refractory epistaxis.

Results: 195 patients underwent SPA ligation. Of these, 29 (14.9%) experienced recurrence of bleeding within 30 days (overall success rate of 85%). Of these 29 patients, 25 underwent an additional embolization procedure after the failed SPA ligation. 13 were embolized with both polyvinyl alcohol (PVA) particles and Onyx, 8 with PVA particles alone, and 4 with Onyx alone. Using Onyx alone resulted in lower rebleed rates (0 out of 4 patients) as compared to PVA particles alone (2 out of 8 patients) and Onyx and PVA particles together (3 out of 13 patients). However, using both PVA particles and Onyx resulted in lower rebleed rates (1 out of 3 patients) as compared to PVA particles alone (1 in 2 patients) amongst patients who needed multiple embolization procedures to control epistaxis (p=0.003).

Conclusions: Previous medical management, comorbidities, and anticoagulation status were not statistically significant predictors of recurrent bleeding in patients undergoing embolization following a failed SPA ligation. There was, however, a statistically significant decreased risk of recurrence following usage of both PVA particles and Onyx when compared with PVA particles alone for patients requiring multiple embolizations.

Introduction

- Epistaxis affects up to 60 million people each year, with 6 – 10 % requiring treatment with some requiring surgical intervention[1-2].
- SPA ligation is successful in 80 – 98 % of cases[3-4].
- There is little published data analyzing the risks factors and outcomes for recurrent epistaxis following a SPA ligation.
- Use of a P2Y12 inhibitor and/or anticoagulation has been reported previously as a cause for recurrent epistaxis following embolization[5]

Methods and Materials

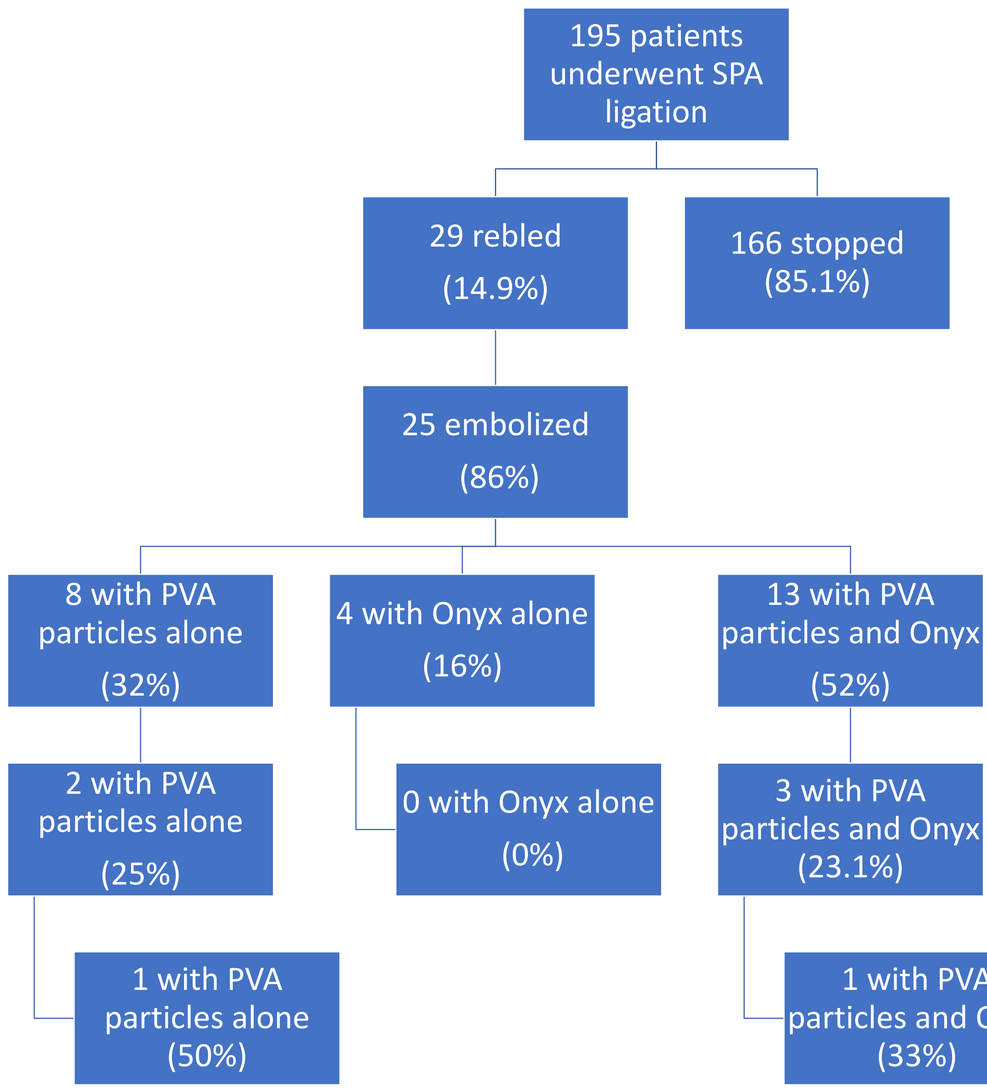
- Patients undergoing embolization following a failed SPA ligation for refractory epistaxis between June 2015 – August 2020 were included in this study. Descriptive statistics, along with a Chi-Square test and Fischer's test, and a multivariate analysis were performed via SPSS 26 (IBM corp®).

Advantages of Particles and Onyx[6]

Particles:
- Resorbable
- Better perfusion

Onyx:
- Forms a cast
- Better visualization of embolic material
- Reduced risk of retrograde filling of collaterals
- More permanent
- More predictable

Results



Discussion

- Anticoagulation status was not predictive of recurrent bleeding in patients after SPA ligation and embolization.
- Onyx resulted in a lower rebleed rate compared to PVA particles alone and PVA particles and Onyx together for patients requiring one embolization procedure.
- A combination of PVA particles and Onyx resulted in a lower rebleed rate compared to PVA particles alone for patients who needed multiple embolization procedures.

Conclusions

- PVA particles, Onyx or a combination of the two can be effective for SPA embolization, but more research is needed to determine specific treatment strategies.

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