

# Efficacy of ultrasound-guided ethanol sclerotherapy for congenital cysts of the head and neck

Lilun Li, Esther Lee, Ashley Lloyd, Jane Tong, Joseph F. Goodman, Punam G. Thakkar, Arjun S. Joshi

## Background

- Congenital cysts of the head and neck, such as thyroglossal duct cysts, branchial cleft cysts, and preauricular cysts can lead to recurrent infections and cosmetic deficits.[1]
- The typical treatment paradigm for these lesions involves treating the acute infection and ultimately surgically resecting the cyst. [2]
- More recently, ultrasound-guided ethanol sclerotherapy has emerged as a viable option for patients who are not amenable to surgery

## Objective

- To evaluate the efficacy of ultrasound-guided ethanol sclerotherapy for congenital cysts of the head and neck in a cohort of patients treated by a single surgeon at a tertiary academic institution.

## Methods

- A retrospective review of 10 patients who received ultrasound-guided ethanol sclerotherapy for congenital masses of the head and neck at a single tertiary academic institution between 2010 and 2020 was performed.
- Primary outcomes studied included volume reduction rate (VRR), presence of palpable mass, pain, and need for surgical intervention following ethanol ablation procedure.
- Secondary outcomes included procedural complications and the number of ablation procedures performed per patient.
- Treatment success was defined as >50% VRR, no palpable lesion, no pain, and no required surgery.
- Wilcoxon signed-rank test was used to compare the mean volume of cysts before and after treatment.
- Statistical significance was declared at  $p < 0.05$ .

## Results

| Case | Sex/Age | Type of cyst | Follow-up, mo | Initial, vol (mL) | Last, vol(mL) | Tx session | VRR, % | Shrinkage | Palpable | Pain | Surgery | Tx success |
|------|---------|--------------|---------------|-------------------|---------------|------------|--------|-----------|----------|------|---------|------------|
| 1    | F/51    | TDC          | 28            | 2.52              | 1.18          | 1          | 53.17  | Yes       | No       | No   | No      | Yes        |
| 2    | F/55    | PAC          | 28            |                   |               | 1          |        |           | No       | No   | No      | Yes        |
| 3    | F/30    | TDC          | 21            | 10.23             | 0.73          | 1          | 92.86  | Yes       | No       | No   | No      | Yes        |
| 4    | M/57    | TDC          | 398           | 2.26              |               | 1          |        |           | No       | No   | No      | Yes        |
| 5    | M/19    | TDC          | 300           | 0.46              |               | 1          |        |           | No       | No   | No      | Yes        |
| 6    | M/33    | TDC          | 27            | 4.03              | 0.03          | 1          | 99.26  | Yes       | No       | No   | No      | Yes        |
| 7    | M/34    | TDC          | 28            | 2.07              | 1.16          | 2          | 43.96  | No        | No       | No   | No      | No         |
| 8    | F/43    | PAC          | 48            | 2.17              |               | 1          |        |           | No       | No   | No      | Yes        |
| 9    | F/66    | TDC          | 28            | 0.73              | 0             | 1          | 100.00 | Yes       | No       | No   | No      | Yes        |
| 10   | F/32    | TDC          | 280           |                   |               | 1          |        |           | Yes      | No   | No      | No         |
| Mean | 42      |              | 119           | 3.06              | 0.62          | 1.10       | 77.85  |           |          |      |         |            |

### Primary outcomes:

- Mean volume of treated cysts decreased from 3.06mL to 0.62mL ( $p < 0.05$ ) with a **mean volume reduction rate of 77.85%**.
- Of the 5 patients with follow-up ultrasound results, 1 had VRR <50%. Of the total 10 patients interviewed, 1 had a residual palpable mass, and none needed additional surgery.
- The treatment success rate as defined by this study was **80% (8/10)**.

### Secondary outcomes:

- The mean number of treatment sessions was 1 (range 1-2).
- No significant complications were observed during follow-up.

## Procedure

1. Under sonographic guidance, an 18-gauge needle was introduced into the cyst and used to aspirate 8 mL of motor-oil consistency fluid.
2. Using the same needle, 3 mL of 97% ethanol was injected into the cyst cavity.
3. The area was massaged
4. A compressive dressing was placed over the injection site

## Conclusion

- In our cohort of 10 patients, ultrasound-guided ethanol sclerotherapy was a safe and effective alternative to surgical resection of congenital cysts of the head and neck, with a treatment success rate of 80%.
- Future randomized prospective studies of larger patient populations may be performed to directly compare ethanol ablation with surgical resection of congenital head and neck masses.

## Reference

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2. Mattioni J, Azari S, Hoover T, Weaver D, Chennupati SK. A cross-sectional evaluation of outcomes of pediatric branchial cleft cyst excision. *Int J Pediatr Otorhinolaryngol*. 2019;119(October 2018):171-176. doi:10.1016/j.ijporl.2019.01.030