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REVIEW

Congenital symmastia revisited

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Summary *Background:* Symmastia is defined as medial confluence of the breast. The term 'symmastia' is modified from Greek (syn meaning 'together', and mastos meaning 'breast') and was first presented by Spence et al. in 1983. Two forms of symmastia exist: an iatrogenic and a congenital version. Congenital symmastia is a rare condition in which web-like soft tissue traverses the sternum to connect the breasts medially. The literature on congenital symmastia is limited, few cases have been published, and knowledge about ideal treatment is still insufficient.
Material and methods: Congenital symmastia was identified as a distinct deformation using a review of the literature and a theoretical model. We analysed the malady using a three-step principle, formulated by Blondeel, which describes the breast as a 'footprint', 'conus' and 'skin-envelope'. To date, few papers on congenital symmastia have been published, most of which focus on the application of various surgical approaches. We examined the literature and evaluated the procedures used, and are presenting two recent cases of congenital symmastia as examples. By combining review and analysis we offer a rational treatment practice.
Results: The analysis showed that the optimal treatment begins by correcting the 'footprint', removing the excess 'conus' over the sternum, and finally reattaching the 'skin-envelope' to the sternum to recreate the normal medial border of the 'footprint'. Thus far, the two most common approaches used to treat congenital symmastia are: reduction mammaplasty and liposuction.
Conclusion: By combining the Blondeel analysis with a procedural review, we developed a flow chart to offer a possible treatment practice.

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Introduction

Symmastia is defined as a medial confluence of the breasts. The term 'symmastia' is modified from Greek (*syn* meaning 'together' and *mastos* meaning 'breast').[1]

Two forms of symmastia exist: an iatrogenic or acquired version and a congenital version.[1–7] The iatrogenic symmastia is a known surgical side effect of breast augmentation or after reduction mammaplasty and is most likely due to medial dissection, which causes the release of the midline sternal attachment of the skin.[3,4]

Congenital symmastia is a rare condition in which web-like soft tissue traverses the sternum to connect the breasts medially. The web consists of various degrees of glandular tissue, subcutaneous fat and fibrous septae.[1,7–9] Few cases of congenital symmastia have been published and the exact rate of incidence is still unknown. Several surgical approaches have been used to correct the medial confluence of the breasts, but a gold standard course of action to treat this deformation is still unknown.[1,5,7,9]

We analysed congenital symmastia using a theoretical model — a three-step principle, formulated by Blondeel.[10,11] By implementing this analysis, we scoured the current literature for surgical procedures currently used to offer a rational treatment practice.

Method

The current literature pertaining to symmastia was identified by searching PubMed using the keywords 'symmastia' and 'synmastia'. Our search yielded nineteen results for symmastia and seven results for synmastia. After review, only nine articles focussed on congenital symmastia. Both English and German articles were included. Our own cases of congenital symmastia were used as examples to describe treatment. We used our literary review, case examples and the Blondeel theory to construct a general flow chart for a treatment practice.

The history of congenital symmastia

Spence was the first specialist to present a case of symmastia in 1983. He used a combination of the Greek syn and mastos to define symmastia.[1] Few papers on congenital symmastia have been published and most articles focussed on the application of various surgical approaches.[7–9,12,13]

Only few articles consider the morphology and genesis of congenital symmastia, and the exact cause remains unknown.[8,14] One study suggests genetic disposition, concluded by one case study whereby both mother and daughter suffered from congenital symmastia. Both patients had a configuration of their presternal web tissue that deviated from what is considered to be normal connecting tissue when analysed in an electron microscope.[8] Other studies suggest an early, rapid breast development as a precursor to the development of congenital symmastia. The forces associated with the pulling away of the cleavage presternal skin by great weight from the breasts may explain the morphology.[1,13,14]

The surgical approaches used for treating congenital symmastia vary. Spence was the first to publish a surgical result with favourable outcomes using a Y—V plastic method. This method resulted in a visible scar in the inter-

Table 1 List of journals and methods used in treating congenital symmastia.

Author	Year	Cases	Treatment
Spence et al.	1983	A	• Resection of presternal web tissue • Y—V plasty
Spence et al.	1983	B	• Reduction mammaplasty • Inferior V-shaped incision
Hoffmann	1984	A	• Resection of presternal web tissue • Cleavage bolster with trans-cutaneous sutures
Mc Kissock	1984	A	• Reduction mammaplasty • M-shaped, inferior incision
Schöneeg W. D. et al.	1991	A	• Reduction mammaplasty
Salgado et al.	2003	A	• Liposuction through periareolar incision on one breast • Sub-cutaneous sutures, dermis to sternum periostinum • Cleavage bolster, no sutures, and T-back support-bra
Wong et al.	2007	A	• Reduction mammaplasty • Sub-cutaneous sutures, dermis to sternum periostinum
Piza-katzer et al.	2009	A	• Reduction mammaplasty
Piza-katzer et al.	2009	B	•Resection of presternal web tissue • Bilateral sub-mammary incision • Sub-cutaneous sutures, dermis to sternum periostinum
Example 1. Current paper	2012	A	• Reduction mammaplasty • Cleavage bolster, no sutures
Example 2. Current paper	2012	B	•Liposuction two times. Cleavage bolster, transcutaneous sutures • Resection of presternal web tissue • Sub-cutaneous sutures, dermis to sternum periostinum • Cleavage bolster, non-sutured