Butterfly-shape scalp excision: A single stage surgical technique for cutis verticis gyrata

Dear Sir,

Cutis verticis gyrata (CVG) is well documented in the literature as an idiopathic benign distinctive folding condition of the scalp. Garden and Robinson's modified classification in 1984, described primary essential, primary non-essential and secondary forms. Surgery has often been advocated, where appropriate, requiring small elliptical or serial excisions combined with tissue expansion or skin excision restricted to the supra-galeal plane. We present here a single-stage technique that combines a ‘butterfly’-shaped scalp excision design and sub-galeal scalp relaxation incisions addressing all the required areas.

A 28-year old man presented with well-established convoluted skin of the frontal, parietal and occipital scalp. He had become increasingly anxious about the unwanted negative attention his appearance attracted. Longer hair had lead to common symptoms of maceration and unpleasant odours from the scalp ‘sulci’, the hygiene of which was more effectively controlled by adoption of short hairstyles, exacerbating his appearance. His medical history and clinical examination were normal, supported by preoperative investigations and scalp skin biopsy. Primary essential cutis verticis gyrata was diagnosed.

Surgery was performed under general anaesthesia with the patient positioned prone. A ‘butterfly’-shaped excision was marked to address both parietal and occipital scalp, but affording wider access for sub-galeal scalp scoring of residual scalp (Figure 1). Standard skin marker ink and hypodermic needle was used to ‘tattoo’ the course of the scalp fold ridges and grooves through to the galea aponeurotica (Figure 2). Monopolar cutting diathermy was used to score, hence release, along the tattooed concavities of the folds through the galea aponeurotica and into the connective tissue of the sub-dermis (Figure 3).

Skin closure was achieved over two small suction drains with 4/0 absorbable sutures and surgical clips, dressed in a bulky turban style dressing for 7 days. The drains were removed at 24 h and clips were removed at 14 days post-operatively.

At 18 months the results were a stable planar scalp with acceptable scars (Figure 4). Multiple z-plasty incisions would disrupt and disguise the continuity of the scar alopecia further improving the outcome. However, as the CVG is considered progressive, future excisions could be performed through the same access.

CVG is a progressive idiopathic condition, affecting males more than females (5:1) although uncommon it is not rare (1:100,000). Following the exclusion of associated conditions that may require treatment, surgical intervention is often sought to address redundant skin and unwanted folds of the face, neck and scalp. The challenge is two fold: the removal of excess skin, and unfurling of residual folds.

Literature descriptions of scalp and more recently facial CVG surgical management have included narrow longitudinal serial fold excisions or rotation flaps also combined with tissue expander insertion. These offer limited areas of excision necessitating multiple procedures. Single or multiple supra-galeal skin excisions do not address the residual scalp.

We have demonstrated that a large ‘butterfly’ or broad ‘X’-shaped sub-galeal scalp excision allowed access to frontal, parietal and occipital scalp. Combined with relaxation incisions to the residual galea aponeurotica (Figure 3) full unfurling of all scalp folds and medial traction revealed skin redundancy for yet further excision.

Histological examination of dermis and adnexa were all found to be normal as with the exception of hyperplasia. The ‘gyra’ and ‘sulci’ were restricted to the dermis, sparing the galea aponeurotica to which the dermis was tightly adherent via dense fibrous bands at the furrow convexities (Figure 3). In relaxing the galea itself, the normal but hyperplastic dermis could be unrestrictedly unfurled.

Often described as a progressive condition, no long-term postoperative outcomes have been described to date. Should the relaxation incisions disrupt the tethered relationship between immobile galea and loose elastic scalp dermis the progression may well cease to manifest as distinctive gyri and sulci. Under such circumstances a modification of the one-stage butterfly-excision should include multiple z-plasty incisions disrupting the scar alopecia as commonly employed by plastic surgeons operating in this region.
Cutis verticis gyrata is uncommon but not rare. Primary forms present as benign disfigurement of patients, who are overwhelmingly male. A butterfly-shaped excision allowed access to all parts of the scalp. When combined with sub-galeal relaxation incisions along the remaining scalp folds, total unfurling of the folds could be achieved as a single stage procedure. This given the cosmetic nature of the condition may make surgery in selected cases a more acceptable option than staged techniques employing tissue expansion or serial excision or neglect of the remaining scalp.

Figure 1  Extensive primary essential cutis verticis gyrata of occipital, parietal and frontal scalp with image of ‘Butterfly’-shaped excision markings.

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Figure 2  ‘Butterfly’-shaped marking and tattooing positions of ‘gyri’.

Figure 3  Positioning of ‘tattooing needle for sub-galeal releasing incisions with subsequent gyri unfurling.

Figure 4  18 month post-operative scalp scar.
Dear Sir,

A 12-year-old girl presented with swelling and pain in the inferior aspect of the left auricle. The patient had experienced recurrent swelling and pain in the inferior aspect of the left auricle for approximately 1 year. The patient had any problem in immunity or other medical conditions. On initial evaluation, a 5-cm-diameter abscess with caudal extension was noted in the inferior aspect of the left auricle. The abscess communicated with a small pit in the lobule near the antitragus (Figure 1).

Excision was performed under general anaesthesia about 1 month after initial evaluation. Visual examination revealed that the fistula originated from the small pit in the lobule near the antitragus, passed anterior to the intertragic notch to proceed anterocaudally, advanced posterocaudally near the posterior margin of the parotid gland and extended subcutaneously to the anterior margin of the sternocleidomastoid muscle. The excised specimen appeared as a single tubular structure.

On histopathological examination, skin appendages were seen continuous with the epidermis, with the fistula being lined by keratinized stratified squamous epithelium. At latest follow-up, no recurrence has been seen 2 years after surgery.

Auricular fistulas are the most common congenital abnormality of the auricle. Most such fistulas are preauricular lesions that are generally found anterior to the ascending limb of the helix. Small fistulas of the crus of helix may also occur, but other types are rare. The classification proposed by Congdon et al.,¹ which classifies auricular fistulas into 7 types, is often used (Figure 2a–e). The 'preauricular fistulas' described in many reports correspond to 'marginal helicine fistulas' denoted in that classification. Congdon et al. also reported that 'pre-auricular' and 'marginal helicine' fistulas account for 80% of auricular fistulas. A statistical study by Iida et al. reported that preauricular and crural fistulas account for 98% of all auricular fistulas in Japan.² Thus, congenital auricular fistulas occurring in the inferior aspect of the auricle and near the lobule are extremely rare. In our literature review, we were unable to find any case of the fistula of the lobule.

According to Woods-Jones et al.,³ auricular fistulas occur along a curved line passing from the temple, to the anterior margin of the ascending limb of the helix, to the interspace...