

Facial biometrics: a novel technique for evaluation of morphological changes in orofacial Crohn's disease

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DESCRIPTION

Crohn's disease presents in the orofacial region with a characteristic lip swelling that can progress to facial disfigurement.^{1,2} To date, assessments of these changes are based on clinical observation together with patient satisfaction reports and semiquantitative methods. Although useful, the development of an analytical approach that permits objective, reproducible and quantitative evaluation of morphological changes is required.

We report the use of facial biometrics to objectively quantify changes associated with orofacial Crohn's disease in a 28-year-old woman.³ The patient was referred by the gastroenterologist for treatment of repeated upper lip swelling. In this patient a baseline facial scan was acquired when minimal lip swelling was present (figure 1A). Two months later she represented with markedly increased perioral swelling and a second scan was captured (figure 1B). Utilising coordinate metrology, figure 1A,B were identically positioned and registered. This allowed areas of swelling to be visualised (figure 1b) and a defined patient-specific template (highlighted in figure 1b–e) to be generated. An initial intralesional triamcinolone injection (40 mg/mL) resulted in some resolution of the swelling; a volume reduction of 6540.8 mm³ (figure 1c) postregistration of the third scan (figure 1C) against the second was noted. Four months after the third scan, the upper lip swelling recurred (figure 1D), with the right side more severely

affected (figure 1d). This informed the precise position (*) in figure 1D) for guided infiltration of intralesional triamcinolone (40 mg/mL). Two weeks post-treatment, registration of figure 1D,E revealed a volume reduction of 9656.4 mm³. At this point she reported considerable satisfaction with the outcome of treatment.

Learning points

- ▶ Crohn's disease is a relapsing systemic inflammatory disease with gastrointestinal lesions occurring anywhere from the mouth to the anus.
- ▶ Facial biometrics offers a non-radiating, non-contact, non-invasive, quick and cost-effective modality for routine evaluation, objective quantification of responses to therapy and long-term follow-up of the orofacial Crohn's disease.

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Competing interests None.

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	1 st Scan (Baseline)	2 nd Scan	3 rd Scan	4 th Scan	5 th Scan
Facial Scans	A	B	C	D	E
Registered Scans (with template)		b	c	d	e
Volume changes		+ 11335.87 mm ³	+4795.11 mm ³	+ 9407.52 mm ³	- 248.86 mm ³

Figure 1 (A–E) Facial scans acquired at five different but successive appointments. (b–e) Scans postregistration of the second, third, fourth and fifth (B–E) facial scans against the baseline scan (A). The template refers to a consistent measurement location from which volume changes were calculated across the registered scans (b–e). The colour scale spans from light purple to blue (left side) and yellow to red (right side) representing negative to positive morphological changes, respectively.



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