Life-size photograph transparencies: a method for the photographic detection and documentation of recovery from facial paralysis


Abstract
We describe a simple and objective practical method for the detection of recovery from facial paralysis by multiple photographic assessments. The photographs are printed as life-size transparencies representing maximal effort. Each time the patient attends for review the new transparency is overlapped on the previous one and the difference can be detected easily. The prints are filed with the patient’s notes for future reference.

To achieve this system a specific photographic protocol is mandatory in order to avoid technical artefacts. We believe that this system avoids many of the complexities of other grading systems and is very suitable for use at outpatient follow-up.

Key words: Facial paralysis; Photography

Method
How we do it?

The patient is given an appointment to attend the Medical Photography Department one week prior to his outpatient follow-up. Having identified, on the request card, that this is a patient with facial paralysis, the medical photographer follows a specific protocol aimed at producing life-size photographs on transparent prints. The key elements in this protocol are:

1. Standardized and repeatable lighting set.
2. Standardized and repeatable patient position.
3. A scale placed on the patient’s forehead to enable accurate printing to scale (two photographs are taken: one with and one without the scale).
4. Standardized camera distance and the camera on a tripod.

The patient sits on a firm non-rotating chair which gives a good upright seating position, making sure the patient has good posture with the back and neck straight. By direct visualization make sure the head is upright, both from in front and the side. The patient should be asked to hold his position and especially asked not to move when using facial expressions. It is helpful if another member of staff can view the patient from one side to make sure the head is not tilted. The patient is asked to use maximal effort for smiling and raising the eyebrows. The actual photographic procedure is carried out in the following steps:

A. A scale is fixed to the patients forehead (using micropore) and a control photograph taken. This photograph will later be used for scaling the print.
B. The scale is removed and a standard set of photographs taken on medium speed black and white film (Kodak T-max 100).
C. The film is processed and the negatives printed to life-size using the control negative (see A) onto black and white transparency film (Kentmere Polyester film - HSPC, A4 size).

To illustrate our method we have included two Figures. The first (Figure 1a and b) is of a patient with a right-sided Bell’s palsy seen on two occasions one month apart with both transparent prints overlapped. The second (Figure 2) is aimed to ascertain the reproducibility and consistency of the protocol used. A volunteer had his photographs taken every two weeks for six weeks. Figure 2 shows a photograph of three overlapped transparent prints.

Discussion
A large number of publications have appeared in the literature for quantification of facial movements as an aid to monitoring the recovery from facial paralysis. At least nine grading systems exist but the most reputable of these is the House Grading System (House, 1983; Brackmann and Barrs, 1984; House and Brackmann, 1985). According to this system, the patient with facial paralysis is assigned to one of six grades with grade I being normal and grade VI being total flaccid paralysis. In between these are the grades of mild, moderate, moderately severe and severe dysfunction. While the system describes the details required to assign the patient into any one group, it remains a complex one and one that is hard to memorize.

With the current outpatient system in the UK, it is difficult to guarantee that the same ENT surgeon will review the patient each time. Inter-observer variation has been shown to have a significant effect on the consistency of any system used for grading facial nerve weakness (Smith et al., 1992).

Although photography as a method for data presentation in facial palsy has been described before (Smith et al., 1991), life-size transparencies have not been used. Compared with video recordings, photographic slides have been shown to provide more consistent results and

From the Department of Otolaryngology and Head and Neck Surgery*, and the Department of Medical Photography†. North Riding Infirmary, Middlesbrough, Cleveland.

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(a) Demonstration of the method on a patient with right-sided Bell's palsy. Two transparencies are being overlapped.  
(b) Close-up of overlapped transparencies.

a clearer presentation of information (Smith et al., 1991). Although it could be argued that photographic presentation lacks the ability to display spontaneous expression, Burres and Fisch (1986) have proved that lack of dynamic function is insignificant in grading facial nerve weakness.

Recently, Johnson et al. (1994) described a photographic method which they called 'the maximal static response assay of facial nerve function'. In their method a number of marks in the form of adhesive dots are placed at specific anatomical points in all regions of the face. Using a grid placed on the subsequent photograph the degree of recovery could be quantified. While this method seems very attractive it is not practical, firstly because of the placement of the dots. We tried using this method and we found that it was very difficult to place the dots in exactly the same place every time which therefore renders the measurements very imprecise. Secondly it is not practical because of the need to have a doctor present each time a photograph is taken. This is impractical except for research purposes.

Our objective was to develop a method which was quick and easy to set up for a single-handed photographer. The skill and experience of the photographer is vital to the success of this method. We believe that this method is a practical and objective way for outpatient follow-up of patients with facial paralysis. The transparencies are easily filed with the patient's records. The transparencies could also be projected easily and could prove to be of value in some medicolegal cases. To our knowledge, this method of printing life-size transparencies has not been described before in the English literature.

References
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Address for correspondence:
Mr V. H. Oswal,
Consultant ENT Surgeon,
North Riding Infirmary,
Middlesbrough,
Cleveland TS1 5JE.