Efficacy of Mohs micrographic surgery for the treatment of dermatofibrosarcoma protuberans: systematic review

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CRD summary
The authors concluded they can weakly recommend Mohs micrographic surgery or similar techniques with meticulous histologic evaluation of all margins being the first-line therapy for dermatofibrosarcoma protuberans, particularly in recurrence-prone regions. The authors' conclusion reflects the evidence presented and is appropriately cautious given the small sample size and poor quality evidence available.

Authors' objectives
To evaluate the recurrence of dermatofibrosarcoma protuberans (DFSP) following Mohs micrographic surgery.

Searching
MEDLINE, The Cochrane Library, EMBASE, Pascal, Biosis, CISMef, BDSP, Scopus and Web of Knowledge databases were searched from January 1995 to August 2011. Search terms were reported. NLM gateway was searched for unpublished articles. Textbooks and French congress books were handsearched. No language restrictions were applied.

Study selection
Randomised controlled trials (RCTs) that compared the recurrence of dermatofibrosarcoma protuberans in patients undergoing Mohs microscopic surgery with wide local excision (WLE) were eligible for inclusion. In the absence of sufficient RCTs, comparative non-randomised studies would be included if they compared recurrence rates between wide local excision and Mohs microscopic surgery. Non-comparative studies were eligible if they reported recurrence rates associated with Mohs microscopic surgery. Studies had to include more than 10 participants with primary or recurrent dermatofibrosarcoma protuberans in any location. Studies of adjuvant therapy and studies that reported incomplete outcome data or that had poor methodological design were excluded.

Most of the studies were conducted in USA; others were in Canada, South Korea and Europe (including UK). Technique and surgical margin varied between studies. Most patients had primary dermatofibrosarcoma protuberans. In the non-randomised comparative studies patients mean age ranged from 38 to 44 years and most had tumours located in the trunk. In the non-randomised non-comparative studies mean ages of patients ranged from 27 to 49 years. Most patients had tumours located in the trunk; some were located in extremities and neck.

Two reviewers independently selected studies for inclusion. Disagreements were resolved by a third reviewer.

Assessment of study quality
Study quality was assessed using criteria from the Cochrane Handbook of systematic reviews of interventions for blinding, allocation generation and concealment, incomplete outcome data, selective outcome reporting and other potential biases. Quality was also graded using criteria by Robinson et al: A (high evidence), B (moderate evidence) and C (low evidence).

Two reviewers assessed study quality.

Data extraction
Data on recurrence rates were extracted by two reviewers independently.

Methods of synthesis
Data were combined in a narrative synthesis and raw recurrence rates were reported.

Results of the review
Twenty-three non-randomised trials were included: four retrospective comparative and 19 non-comparative studies (two
prospective, 15 retrospective and two not specified). There were 264 patients in the comparative studies and 583 in the non-comparative studies. The comparative studies were graded as level B (moderate) evidence and the non-comparative studies as level C (low) evidence. Mean follow-up times ranged from 26 to 127 months (where reported). Mean time to recurrence was 68 months.

Non-randomised comparative studies: The overall recurrence rate of dermatofibrosarcoma protuberans was 1.11% (95% CI 0.02% to 6.03%) for the Mohs microscopic surgery group and 6.32% (95% CI 3.19% to 11.02%) for the wide local excision group (four studies). No recurrence was reported in three studies in the Mohs microscopic surgery group but tumours recurred in the wide local excision group in all three studies.

Non-randomised non-comparative studies: The overall recurrence rate of dermatofibrosarcoma protuberans was 1.03% (95% CI 0.37% to 2.22%) for patients who received Mohs microscopic surgery (19 studies). Fourteen studies reported overall recurrence rates of 0%, four reported 2% to 3% and one study reported 8.3%.

Over the 23 non-randomised trials reported seven recurrences at a mean raw recurrence rate of 1.04% (95% CI 0.41% to 2.13%).

Authors’ conclusions
A weak recommendation is given in favour of Mohs micrographic surgery or similar techniques. Meticulous histologic evaluation of all margins is the first-line therapy for dermatofibrosarcoma protuberans, particularly in recurrence-prone regions.

CRD commentary
The review question was clearly defined with adequately reported inclusion criteria. Several relevant sources were searched and efforts were made to reduce language and publication biases. Appropriate methods to reduce reviewer error and bias were used throughout the review process. Study quality was assessed but was not reported for individual studies. No RCTs were available for inclusion and non-randomised comparative and non-comparative studies are prone to multiple biases.

Outcomes were reported as raw data which appeared appropriate given the differences between studies in terms of participants, intervention detail and study design. A statistical comparison between the two interventions would have been helpful.

The authors’ conclusion reflects the evidence presented and is appropriately cautious given the small sample size and poor quality evidence available.

Implications of the review for practice and research
Practice: The authors stated that Mohs microscopic surgery or similar surgical techniques with meticulous histologic evaluation of all peripheral and deep margins can be used as first-line treatment of dermatofibrosarcoma protuberans. Attention should be given to longer than five-year follow-up because some recurrences occur after five years.

Research: The authors stated that further high quality trials with sufficient follow-up periods (more than five years) were needed.

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