



Use of patient-provided pictures in general clinical teleconsultation

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Teledermatology and Pictures (1)

- Most of the published experience with skin images related to teleconsultation takes place between primary care physician and dermatologist:
 - Moreno-Ramirez D et al. , Arch Dermatol, 2007
 - Quality was adequate

- What is the experience with patient-taken pictures ?

Teledermatology and Pictures (2)

- A recent study shows general usability of patient-provided photographs in a special setting:
 - Qureshi AA et al. , JTT, 2006
 - Photographs taken in a dermatological clinic (n=50)
 - Mostly women (n= 45), Education above college (n=39)
 - Only patients with Acne or Rosacea (face images only)

- Overall, there is little published data on the use of patient-provided pictures for telemedical consultation

Swiss Center for Telemedicine

www.medgate.ch

- Switzerland's largest medical teleconsultation center (phone, internet and video):
 - Overall, 1500 patient encounters per day
 - 300 patient-doctor medical consultations
- The medical setting is primary health care, similar to the one of a general physician
- In 58% of medical consultation treatment can be provided without physical encounter with another medical provider (instruction for self care [SC]).

Swiss Center for Telemedicine

- Dermatological inquiries count for about 2-5% of all medical teleconsultation in our center:
 - Diagnostic accuracy without skin examination is limited
 - Self-care is presently possible in about 36% of the cases, as most of the cases cannot be solved without picture material

- Can the self-care rate be improved with patient-provided pictures in a general medicine telemedical setting ?

Study Questions

- Can patients take pictures of their own skin lesions and send them in for a telemedical consultation?
- Are patient-provided pictures useful diagnostic tools?
- Are patient-provided pictures increasing the rate of self-care treatment options?

Study Method (1)

- Patient selection: 58 consecutive patients calling for a skin condition were included
- Patients were instructed how to take pictures of their skin:
 - Over the phone
 - Followed by written guidelines sent by email
(written informed consent form was sent back within 24h)
- The patients were asked to send the pictures by email

Study Method (2)

- A working diagnosis was formulated with the patient history and the images, and a treatment proposed
- All cases were reviewed by a qualified dermatologist within 24 hours
- Patient follow-up:
 - Follow-up call after 2 weeks
 - Follow-up call after 4 weeks with the request of sending picture of the same skin region

Study Method (3)

Picture quality criteria:

- **Good:** image focus, brightness and display detail adequate
- **Medium:** image focus and brightness (partly) adequate
- **Poor:** image focus inadequate

Study Results (1)

- **46 patients could be evaluated (79%)**
 - 58 patients were initially included:
 - 2 without (written) informed consent
 - 5 patients did not send pictures
 - 5 lost for follow-up

- Age distribution: 1/12- 65 years (median 32 years)

- Male : Female ratio: 1.4 : 1

Study Results (2)

- Quality of initial pictures (n = 46 patients)
 - **Good quality:** 22 patients (47.8%)
 - In 4 cases an additional picture would have been useful to further secure diagnosis
 - **Medium quality:** 12 patients (26.1%)
 - **Poor quality:** 12 patients (26.1%)

- Overall, 73.9% of the patients sent initial pictures which allowed a more accurate telemedical diagnosis

Study Results (3)

■ Main diagnosis:

- Acute urticaria
- Eczema
- Unspecific parainfectious rash
- Tinea corporis/pedis
- Pityriasis rosea Gilbert

Study Results (4)

- ▣ Quality of follow-up pictures [n = 39 (85% of initial pictures)]
 - **Good quality:** 30 patients (76.9%)
 - **Medium quality:** 2 patients (5.1%)
 - **Poor quality:** 7 patients (17.9%)

- ▣ Overall 82% sent pictures with adequate quality for follow-up

Contact Allergy at Diagnosis (1)



Contact Allergy after Treatment (2)

- Treatment with topical steroid
- Follow-up at 4 weeks:



Impetiginized Blister



Impetiginised blister

Treated with topical antibacterial ointment



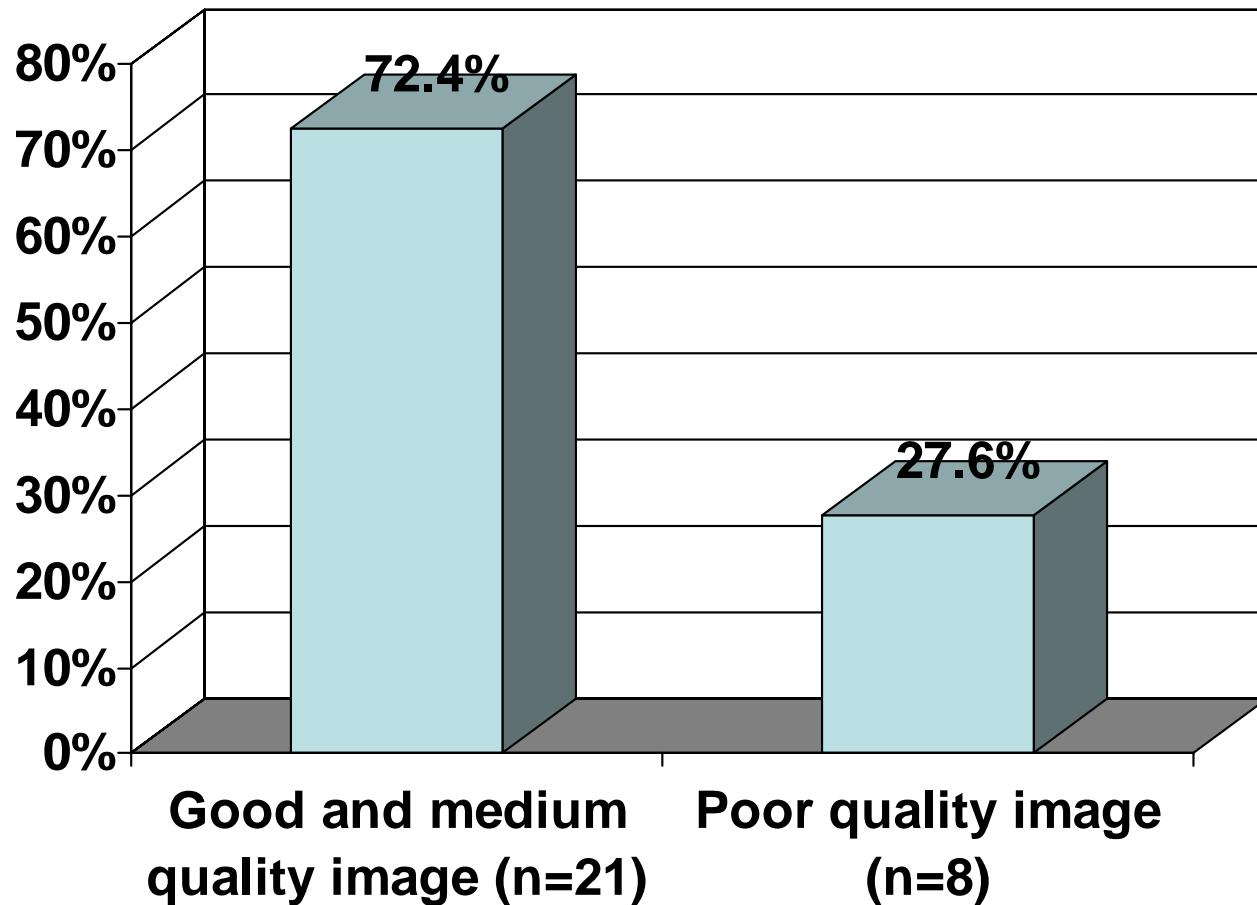
Follow-up picture after 4 weeks

Study Result (5)

Self-care (SC) rate assessment:

- 63% of all patients (n=29) who sent in images could be instructed for self-care:
 - 72.4% (n=21) provided a useful image
 - 27.6 % (n=8) had a straight-forward working diagnosis not requiring a picture

Self-care Rate according to Image Quality



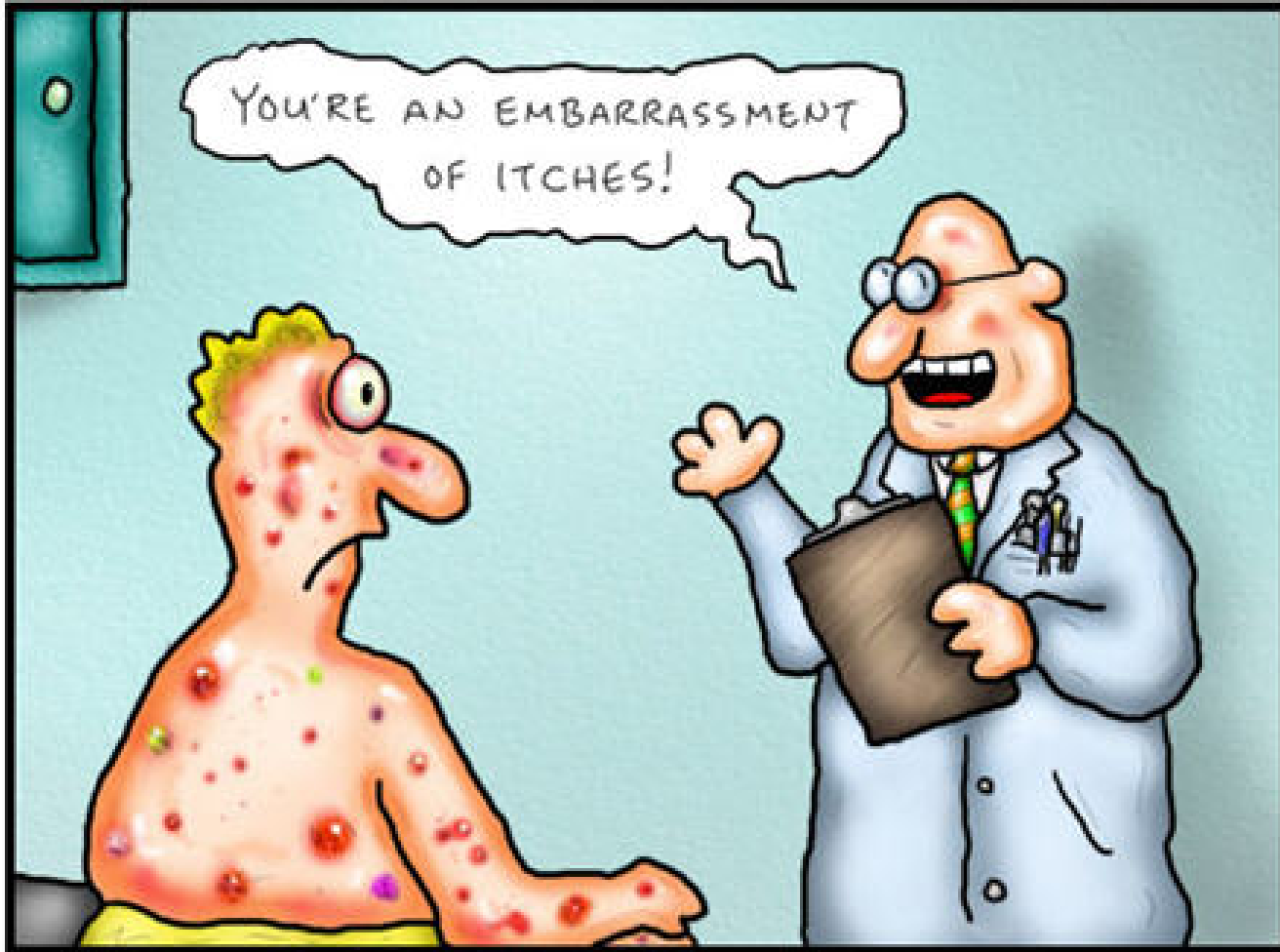
Conclusion (1)

- Patients can be instructed to take skin pictures (digital camera or cellphone)
- Patients can be instructed to take useful images of their own skin lesion , but there is room for improvement
 - 34 patients (74% of all patients who sent initial pictures) sent useful pictures
 - 32 patients (82% of of all patients who sent follow-up pictures) sent useful pictures.
- The images did help substantially to improve the self care rate during telemedical consultation:
 - Self-care rate was increased by 27% (from 36% to 63%)

Conclusion (2)

- Patients were very positive about this new option
- Overall, teledermatology using patient provided images is feasible and adds value to the basic general telemedical service
- Medical teleconsultation diagnostic and treatment ability (especially instruction for self-care) could be largely improved using images in other medical conditions (simple traumatology, ophtalmogology, dietetic)

Thank You for your Attention



David Farley, 2004