

Voice rehabilitation through Arabic phonetics

Nacira Zellal
URNOP- Algiers 2 University

Abstract

This paper deals with an experience carried out in Algeria, in the frame of the direction of a post-graduate work (Speech Therapy Postgraduate, Algiers University, 1987) of F. Melkou (1990), using Arabic phonetics (N. Zellal, 1984) in voice rehabilitation process. It synthesizes the phoniatic protocol degaged from two new principles, through the presentation of a case study who resumed her profession 12 years ago, without any relapse.

Keywords: voice ; arabic phonetics ; reeducation ; segmentation ; phoniatics.

Introduction

In Algeria, professional voice disorders reeducation was first based upon Dr. F. Lehuche¹³ therapeutic program (1991), which consists in:

- Relaxation
- Breathing technics
- Vocal exercises.

Results were convincing, but certain patients couldnot resume their professional activities. So, we had to reflect about more efficient phoniatic means.

2. Two new principles of phoniatic reeducation

2.1 Segmentation of oral corpus

This technic is proposed to dysphonic subjects through *projected reading* technic, since this category of patients suffer from a characteristic shrink- ing of vocal space, due to the weakness of voice intensity.

2.2 Exploitation of socioprofessional factors

Corpus corresponding to texts extracted from professional situations:

- Theatrical language (comedians)
- Literature (teachers)
- Koran (muezzins)
- Magistrature (barristers).

3. Material and method

3.1 Control modalities of results

¹³ Lehuche, F. (1999), *Cours de pathologie vocale*, Paris, Masson.

- Our own subjective appreciation of voice qualities of the patient: « subjective listening » of Dr. F. Lehuche.
- The assessment of the patient himself of his own voice.
- *Reference to vocal parameters* of phonatory acts of a control subject: with no vocal problems, of the same age, sex and profession as that of the dysphonic case studied here.

3.2 Control subject observation

M. C, 30 years old has been a comedian since 18 years. She uses her voice 25 to 30 hours weekly.

We have observed her during several presentations and have noted no anomalies in her vocal and time spaces. She presents a great tonal variability and a clear pitch.

Her own appreciation of her voice: here the discussion is based on performance required by the theatrical plays, according to classical theory of R. Husson¹⁴.

- *Frequency requirement* : M. B. says that she uses her larynx as a musical instrument, she may alter her voice at will, upon each musical note, in relation to the text to be read ;
- *Intensity requirement*: she does not limit her voice range and directs her voice to people sitting in the last rows. When the audience is noisy, she can go beyond the normal, without straining unduly her voice ;
- *Pitch requirement*: as the height, it depends on text quality. In a play where imitations are numerous, pitch can vary considerably. She says that she plays at will with vocal colorations;
- *Non fatigability requirement*: at the end of the presentation, she feels a light vocal fatigue.

These 04 parameters are considered in the reeducation of our dysphonic patient, whose a longitudinal approach is led out hereafter.

4. Clinical observation

M. B., 34 years old, has been a comedian since 15 years. She uses her voice 20 to 33 hours weekly.

During our conversation, we note that her voice is sometimes hoarse, husky, muffled, it lacks range. The intensity varies and falls at the end of sentences especially.

When M.B. must convince her public, she suffers from a major vocal fatigue. She often clears her throat and has frequent « couacs ». Projected voice shows a major effort comportment. Phonatory breathing is exclusively thoracic. The flow is slow, but no disruption occurs inside the sentences when she reads a text.

For one year, M. B. has found her voice dark, weak, without flexible tonal variations. It gets deep after two hours of exercise, she finds it limited in intensity and she cannot

¹⁴ Husson, R. (1962), *Physiologie de la phonation*, Paris, Masson, 498-501, p. 499.

raise the tone. It breaks and gets hollow sometimes at the beginning of the elocution process of just 5 utterances addressed to the public. She feels a discomfort which results in tickling at the back of the throat. She cannot bear throat clearing, cough, because of the feeling of alien element down the throat. Long texts make her anxious and she develops a cancer phobia. Yet, her voice is better during week end.

Laryngoscopy exam shows a nodule of right vocal cord.

It is a dysfunctional dysphonia according to Dr. F. Lehuche typology.

4.1 Reeducation of M. B.: the technics used

Phoniatric treatment and work on stage overlap for this case. 16 séances, once a week, 30 to 45 of minutes each.

The 03 technics of Dr. F. Lehuche (see above) are used, but in a different manner when we apply vocal exercises. Here is our program:

- projected reading of theatrical texts chosen by the patient
- segmentation of corpus into syntactic sequences using the sign: « / » between short significant segments :

- moneme or syntagm ;
- non-significant segments: syllable or phoneme.

Types of difficulties indicating segmentation process:

Everybody can make a sequence expandable. This expandability depends systematically on phonatory breathing. But, in case of dysphonia and the setting in of the vicious circle of vocal strain, breathing will be disturbed. The pneumophonic disagreement presents then two aspects:

- The dysphonic can feel difficulties in pronouncing a sequence of discourse with one breathing in. Consequently, the discourse is broken;
- On the contrary, patient can emit a long utterance, but under the effect of vocal strain. Energy spent will become more marked and then will decrease at the beginning and the end of the sequence.

Here are the exercises used in these cases:

- The subject pronounces alone a text, listens to himself and then assesses his own voice;
- Text is read again by the patient but it is segmented in syntactic or syntagmatic utterances;
- Before speaking, he must: breath in calmly. The expiration must coincide with the phrase length. Between this experience and the new breathing in, the subject must observe a pause, and so on, until the end of the text;
- if breathing and vocal parameters are disturbed, the text is segmented in short sentences. If these were difficult, sentences would be segmented in monemes and syntagms ; monemes could be segmented in syllables if necessary.

Eg. : The verbal syntagm :

| |
|--|
| <p>[nestěteĝ] <i>I produce</i></p> |
|--|

is emitted by M.B in a shortened manner, because of the vocal strain, giving a constantly hoarse pitch to the central syllable. This difficulty is corrected through repetition of this syntagm as segmented (patient observes a short pause between each syllable):

[nes / tē / teğ]

When each syllable is pronounced with a clear pitch, it is inserted in the syntagm:

[nestēteğ]

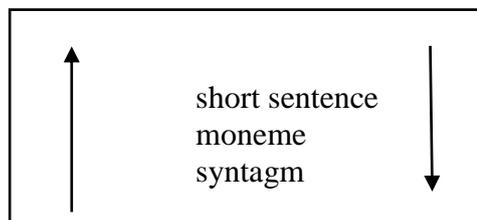
in a short utterance :

[nestēteğ kull ʎenwè:ɣ minelxodra]
I produce every kind of vegetables

in a complex sentence :

[jestēteğu mè:jɣajto:lo:chğè:wè:d iɣajto: lo
si:dnağèwè:d mè:ch laxa:tar solta:n laxatarxaddè:m]
*He produces and he is not called Djawad but our
SirDjawad, not because he is a Sultan, but because he isa worker*

That method of complex to simple progression can follow a reverse trend: from simple to complex:



The reeducation is transversal: we employ the relaxation, breath, then vocal exercises during a same session.

We ask the patient to do these tasks at home and during her professional activity.

We stop the therapy when results become stable.

4.2. Results

- Relaxation is well accepted. After cost abdominal breathing control, M.B is submitted to projected reading of a convincing theatrical text of 23 lines. The voice is weak but

clear enough until mid-production, but gets altered after. We correct the pitch by the elimination of vocal strain through coordination of pneumophonic synergy and audiphonatory control exercises:

- in projected reading, we notice that M.B feels at ease in the choice of texts, which allows her to project herself in her profession, and perceive her own difficulties and vocal imperfections ;
- the division of corpus from complex to simple utterances enables her to:

a) Overcome her vocal difficulties and to correct her acoustic imperfections immediately and easily;

b) Get a correct voice during clinical sessions;

c) Maintain it in job;

d) Vocal technics become automatic, pitch is clear and there is neither strain nor feeling of alien element;

e) Projected voice is clear;

f) Intensity is stronger and vocal space wider;

g) The laryngologist confirms the good assessments about the acoustic features of the voice. Larynx is normal.

One month later, the control exam shows no anomaly.

This phoniatic program is used in ORL Algerian field with an efficiency which leads to conclude that even in the absence of a high technology, dysphonic patients can availably be reeducated and use again normally there voice during their professional activities.

Bibliographie

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