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NEWS

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*****Medical researchers report on
bizarre speech problem.

DALLAS--A schoolteacher's stroke has shed new light on little-known functions of the right side of the brain.

Medical scientists have long known that the key areas of the brain for certain language functions (grammar, word choice, and articulation) are located on the left side, or left hemisphere. Damage to these "dominant" brain areas usually produces serious language disabilities.

But now researchers at The University of Texas Southwestern Medical School at Dallas and Harvard Medical School have found evidence that the right side of the brain also may have certain dominant language functions of its own. The right hemisphere seems to contribute an essential component of spoken language--the pitch, rhythm and stress of pronunciation that adds emotion to speech.

Dr. Elliott Ross, assistant professor of neurology at UT Southwestern, and Dr. Marsel Mesulam, assistant professor of neurology at Harvard, report in the March issue of the "Archives of Neurology" on two cases in which right hemisphere damage resulted in a peculiar language difficulty. Both patients were unable to modulate the tone of their voice to match the mood they wanted to impart to their listeners.

One case the researchers report is that of a 39-year-old school teacher who suffered a stroke on the right side of her brain. She was able to resume teaching one month after her stroke, but she noticed two rather distressing disabilities. "Her voice was abnormally weak and could not be projected in a classroom," the researchers said in the journal article. "Even more disabling was her complete inability to express emotion through speech and action."

She spoke with an unmodulated, monotonous voice that lacked the inflections, coloring, melody and cadence of normal speech. And her facial expressions and gestures lacked animation.

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first add speech disorder

Because she relied on the emotional quality of her speech to maintain classroom discipline, she now found it impossible to adequately control her students. Even her own children had trouble detecting when she was angry, upset, and really "meant business." She was able to circumvent these difficulties at home by adding "God damn it, I mean it" to the end of her sentences. But such profanities and expletives were all spoken in a complete monotone, without emotion.

"The patient had also lost her ability to cry and laugh," the researchers say. When she attended her father's funeral she was totally unable to express emotion, although inwardly she felt sad and wanted to cry. When she finally "forced" herself to cry, her husband said it sounded stilted, unconvincing and entirely different from her usual crying.

"When she managed to smile or chuckle, it seemed contrived and feigned," the researchers observed. "The patient stated that her ability to experience emotion was not impaired, only its outward expression."

After six months, she began to gradually regain the ability to insert emotion, coloring, and volume into her voice. Eight months after the stroke--to the patient's great relief--she was able to discipline her children and students, project her voice in the classroom, express emotion appropriately through voice and gesture, and laugh and cry naturally.

"This is the first time a disorder of emotional language production has been correlated to a focal brain lesion," Dr. Ross said in an interview.

From this case and other data, Ross and Mesulam have postulated that the right hemisphere plays a dominant role in language by contributing an emotional component of speech. "We could view the division of language functions between the two hemispheres of the brain as the left being responsible for what you say and the right being responsible for how you say it," explained Dr. Ross.

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