EDITORIAL

Changing Concepts in Celiac Disease

Suraj Gupte, MD, FIAP

Celiac disease (CD), a state of permanent hypersensitivity to gluten has remained either under-diagnosed or misdiagnosed in the Asian countries in particular in the past for quite a few reasons, including

- The widespread myth that it is rare and, at best, infrequent,
- Lack of index of suspicion because of poor familiarity with its various clinical presentations even among qualified pediatricians and physicians, and
- Lack of easy availability of screening and diagnostic tests even in medical college hospitals and other Health/ medical centers.

Mercifully, studies in the recent past have left no doubt about the existence of CD in a perceptible proportion in the Asians living in the West as well as in several parts of Asia per se (1), including India (2-9), thereby opening new vistas.

Quick on the heels of this breakthrough emerges the relatively more recent realization that the classical form of CD represents only a tip of the iceberg (1,7). In fact, atypical and symptom-free (latent) forms of CD occur in a much higher proportion though these cases frequently remain undiagnosed. In certain studies from the Western countries, the ratio of classical to atypical cases has turned out to be around 1: 7. No such information is available from India presently. Nevertheless, it is important to keep in mind the atypical manifestation of CD, namely short stature, irritable bowel syndrome (IBS), easy fatigability, unexplained chronic anemia, especially iron-deficiency anemia (IDA), delayed puberty, infertility, unexplained epilepsy, intellectual deterioration, dementia, peripheral neuropathy, ataxia, osteoporosis, persistent/recurrent aphthous ulcers, cryptogenic chronic hepatitis, dental hypoplasia and other enamel defects, etc.

The third commentable breakthrough happens to be in relation to the pathogenesis of the disease (7). CD is an abnormal response to the prolamine present in cereal seeds/grains of wheat, barley and rye. Different offending cereals contain different prolamines: gliadin in wheat, secalins in rye and hardeins in barley. Recent studies indicate that an enzyme, tissue transglutaminase (tTG), appears to form an autoantigen with gluten. Whether tTG is responsible for initiating an immunoreaction against gliadin or simply exacerbates the immune response is not clearly understood. Varying degree of villous atrophy (usually subtotal or total) most remarkably occurs in duodenum and upper jejunum, leading to an absorptive defect. This is an essential pathologic lesion. The earlier impression of the prolamine present in oat as a toxic ingredient in the causation of CD has not stood the test of recent investigations. Moderate consumption of oat is well tolerated by the celiac subjects.

Last but not the least, over the years, a noteworthy progress has been made in relation to the serum markers for CD (11,12,14). Serum IgA (not IgG which is somewhat inferior), anti-gliadin antibodies (AGA), represent a reliable, noninvasive and powerful screening

From the Department of Pediatrics, Government Medical College/ SMGS Hospital, Jammu, J&K, India.
Correspondence to : Dr. Suraj Gupte, Prof. & Head of the Unit, Deptt. of Pediatrics, Govt. Medical College / SMGS Hospital, Jammu, J&K.

test for CD. Another immunologic test, IgA endomysial antibody (AEA), has a very high (98%) specificity and positive predictive value for CD. Many experts regard it as the best antibody test for CD. Yet another serum marker, IgA antireticulum antibody (ARA) has 100 % specificity though only 83% sensitivity against 97% for AEA.

Undoubtedly,the most important clue in diagnosis of CD remains the high index of suspicion (7,13,14). The European Society of Pediatric Gastroenterology and Nutrition (ESPGAN) considers the jejunal biopsy as the "gold standard" for confirming the diagnosis(1, 7). Ideally, at least 3 biopsies (at beginning of diagnostic work-up, on GFD, and following gluten challenge) are essential which is often not quite practicable because of its cumbersomeness and scant availability. Too much of reliance on biopsy without regard to the totality of the case has often led to avoidable errors. We as well as others have time and again encountered similar histologic changes in gross malnutrition, endemic tropical sprue, chronic ancylostomiasis, chronic giardiasis and chronic iron-deficiency anemia (IDA). Of late, the combination of IgA-AEA has been advocated as an ideal alternative to the duodenal/ jejunal biopsy. This, if supported by further work, should be regarded as an important development, paving way for improving detection and identification of cases of CD and that too fairly early in life.

Finally, now it stands well documented that appropriately managed children with CD are capable of leading a full, active and normal life with potentials to grow into healthy adolescents and adults (7). Efforts, therefore, need to be boosted to identify CD cases early enough through availability of diagnostic infrastructure and providing them suitable lifelong care, primarily targeted at GFD, preferably with guidance from a competent dietician.

We strongly recommend the launching in India of a celiac society with zonal, state and local branches and sub-branches. In our considered opinion, this endeavor can play a significant role in boosting the dietary (GFD) compliance. Teenagers with CD need a special attention for dietary compliance in view of the peer pressure to the contrary. Strict adherence to GFD is not only the key to successful treatment but also to safeguarding against risks of malignancy associated with untreated or poorly treated CD.

References

1. Horwath K, Mehta DI. Celiac disease: A worldwide problem. *Indian J Pediatr* 2001 ; 67 : 757-63.
2. Walia BNS, Gupte S, Mehta S, Aggarwal KC. Chronic diarrhea in north Indian children. *Indian J Med Res* 1971; 59 : 1448 -56.
3. Walia BNS, Gupte S, Mehta S. Celiac disease. *Indian Pediatr* 1972 ; 8 : 620-25.
4. Gupte S, Walia BNS, Mehta S. Tropical malabsorption: Experience in north Indian children. In: Gupte S (ed) Newer Horizons in Tropical Pediatrics, 1st edn. New Delhi: Jaypee Brothers, 1977 : 270-78.
5. Gupte S, Pal M. Celiac disease in Indian children. Yes or No? *Eur Chron Gastroenterol* 1982 ; 4 : 412-13.
6. Khoshoo V, Bhan MK, Jain N, et al. Celiac disease as a cause of protracted diarrhea in Indian children. *Lancet* 1988 ; 1 : 126-27.
7. Gupte S. Chronic diarrhea and malabsorption in tropical settings. In: William AE (ed) Trends in Pediatric Problems in Developing Countries, 3rd edn, London : Smith and Smith. 1990 : 332-47.
8. Gupte S. Celiac disease. *Indian Pediatr* 1990 ; 2 : 921-22.
9. Thapa BR. Celiac disease in India. *Indian J Pediatr* 1999; 66 : S16-S20.
10. Tomar BS. Chronic diarrhea. In : Gupte S (ed) Recent Advancesin Pediatrics (Special Vol 6: Gastroenterology, Hepatology and Nutrition). New Delhi : Jaypee Brothers. 2000 : 130-79
11. Bhatnagar S, Bhan MK. Serological diagnosis of celiac disease. *Indian J Pediatr* 1999 ; 66 : S26-S31.
12. Thapa BR. Celiac disease in children: Recent concepts. *JK Science* 2001 ; 3 : 3-11
13. Mittal SK. Editorial: Celiac disease in India. *Ped Gastro* 2000 ; 2 : 1
14. Butt,S. New clues point to celiac disease. *The Practitioner* 1999 ; 243 : 276 -82