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Nasal bone / nasal tip length ratio for trisomy 21 screening test.

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Objetives

Ultrasonographic markers of the fetal profile are considered the most predictive for Down syndrome. It is reported that 36% of fetuses with Down syndrome have absent nasal bone and 50-60% have nasal bone hypoplasia. The relationship between prenatal thickness (PT) and the nasal bone length (NB) is currently the most effective marker for screening for down syndrome. There are not similar studies in Mexico and scarce publications in Latin population, we studied an NB/NTL ratio as screening for Down syndrome in mexican population.

Methods

Longitudinal, ambispective, analytical, diagnostic test study were performed, in Mexican pregnant women from the Hospital Universitario Dr. Jose Eleuterio Gonzalez, Mexico; during the period 2018-2023 consecutive ultrasonographic records of women who attended the Obstetrics service of the Hospital Universitario “Dr. Jose Eleuterio Gonzalez” for fetal anatomy scan and meet the inclusion criteria were included. Nasal bone length and nasal tip length were measured, and ratio was calculated, a ratio <0.333 was established as positive and compared with others ratio markers in patients with trisomy 21 diagnosis.

Results

344 patients were included. A nalyzed cross-tabulations, sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of the NB/NTL ratio for prediction of Down syndrome. Those patients with a positive index ($\text{NB/NTL} > 0.333$) correspond to a higher proportion of patients with T21 than those with in index >0.333 (40% vs 2.1% respectively), with this difference being statistically significant ($P < 0.001$), with sensitivity and specificity index 40 and 97% respectively.

Conclusion

Our results were similar to those reported in 2019, with a sensitivity og 40%, specificity of 97%, PPV of 22, NPV 99. Therefore, the HN/NTL ratio points to a future indicador in prenatal screening for Down syndrome.

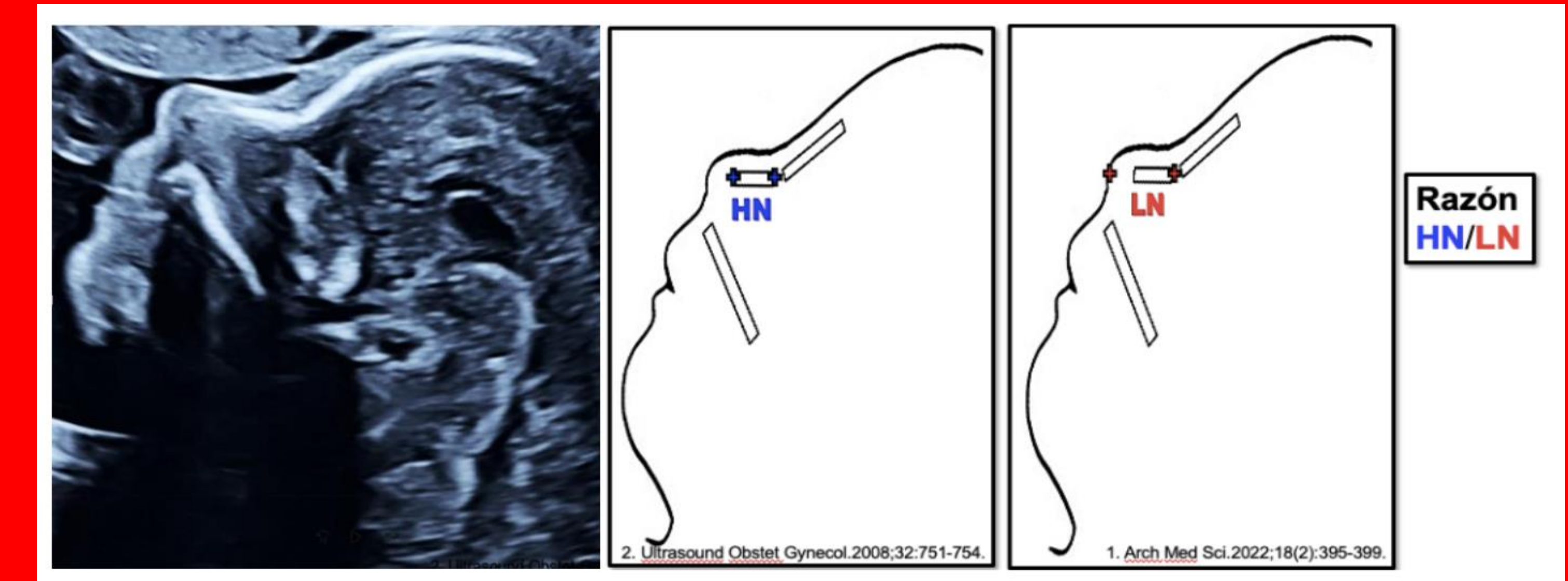


Figure 1. Midsagittal ultrasound image of the fetal face used for screening and providing important data for diagnosing nasal bone abnormalities.
Figures 2 and 3. Graphic description of the correct technique for measuring nasal bone (NB) and nasal length (NL) for calculating the NB/NL ratio.

			T21		Total
			si	no	
HN/LN ≤ 0.333	si	Recuento	2	7	9
		% dentro de T21	40.0%	2.1%	2.6%
	no	Recuento	3	332	335
		% dentro de T21	60.0%	97.9%	97.4%
Total	Recuento		5	339	344
	% dentro de T21		100.0%	100.0%	100.0%
S	0.40	P<.001 correccion de continuidad p P<.001 OR: 31.619 IC95% (4.546-219.914)			
E	0.97				
VPP	0.22				
VPN	0.99				

Table 1. Cross-table of HN/LN less than or equal to 0.333 against T21.