Original Article

www.ijrhs.com
ISSN (o):2321–7251

Prevalence of Ewing's sarcoma in population of Western India

Vaniawala Salil [1], Gadhia Pankaj [2]

Molecular Cytogenetic Unit, S. N. Gene Laboratory and Research Centre, President Plaza-A. Near RTO Circle, Surat, India.

Submission Date: 19-04-2014, Acceptance Date: 04-08-2014, Publication Date: 31-10-2014

How to cite this article:

Vancouver/ICMJE Style

Salil V, Pankaj G. Prevalence of Ewing's sarcoma in population of Western India. Int J Res Health Sci [Internet]. 2014 Oct 31;2(4):979-80. Available from http://www.ijrhs.com/issues.php?val=Volume2&iss=Issue4

Harvard style

Salil, V., Pankaj, G. Prevalence of Ewing's sarcoma in population of Western India. *Int J Res Health Sci*. [Online] 2(4). p.979-80 Available from: http://www.ijrhs.com/issues.php?val=Volume2&iss=Issue4

Corresponding Author:
Dr. Pankaj Gadhia, Molecular Cytogenetic Unit, S.N.Gene Lab. and Res. Centre, Surat, India.
E-mail: pankajkgadhia@gmail.com

Abstract:
In a retrospective study from 2011 to 2014, prevalence rate of Ewing's Sarcoma was screened in population of Western India. Out of 15 suspected cases, we found only 02 cases of Ewing's sarcoma. To our knowledge this is first report from Gujarat covering Western India.

Key words: Prevalence, Ewing's sarcoma, FISH, Western India

Introduction

Ewing's sarcoma (ES) is a malignant tumor was first described as an endothelioma of bone by James Ewing in 1921 [1]. Ewing's sarcoma (ES) is common malignant small round blue cells tumour found in childhood and adolescent. Although it can occur at any age, it rarely occurs in adults over age of 30.

Cytogenetic analysis identifies the t(11;22)(q24;q12) translocation specific to Ewing's sarcoma and it is found in 85% cases. This translocation results in the formation of the EWS-Fli1 fusion gene, which includes the 5' half of EWS gene on chromosome 22 fused to 3' half of the Fli1 gene from chromosome 11. The epidemiological study of this cancer has the relation with the races. It is reported that whites predominantly affected by Ewing's sarcoma, whereas the incidence rate in Asian and African populations are comparatively less [2,3].

Material and Methods

A retrospective screening of data was carried out at S. N. Gene Laboratory and Research Centre (SNGLRC), Surat, India between June, 2011 and March, 2014. A total of 15 cases were referred to us from Gujarat and parts of Western India for diagnosis of Ewing's sarcoma. The paraffin embedded block was processed. To identify cryptic rearrangement; Fluorescence In Situ Hybridization (FISH) on interphase cells was performed utilizing EWSR1 (Abbott-Vysis, USA) dual colour break apart rearrangement probe. For each hybridization a minimum of 200 non overlapping interphase nuclei were assessed for the presence of fused and/or split green and orange signals.

Results and Discussion

A total of 15 suspected Ewing's sarcoma cases were referred to our laboratory (2011-2014) for FISH analysis. The age ranges of patients varied from 11 months to 67 years. Fish analysis revealed only 02 cases of Ewing's sarcoma with t(11;22) (q24;q12) and presence of EWSR1 gene (Table -1) and (Figs 1 and 2).

Ewing's sarcoma is primary bone cancers that affect children and adolescents. Recent cytogenetic studies have been instrumental in mapping cancer-related genes located at genomic sites that are visibly involved in neoplasia associated chromosomal rearrangements.

The only paper we came across is of Vora [4] who reported 27 cases of Ewing's sarcoma which are recorded between 1941 and 1947 from an old record of cancer registry.

To our knowledge, no attempt was made to study prevalence of Ewing's sarcoma in the populations of Gujarat covering Western India with modern molecular cytogenetic technique such as FISH; we report 02 cases of confirmed Ewing's sarcoma. It is interesting to note that age in case no. 1 was 45 years which is considered to be unusual and rarely reported in literature.

Table-1 shows age and sex distribution among cases of Ewing's sarcoma

Case No.	Age	Sex	Translocation	FISH result
1	45	M	t(11;22)(q24;q12)	EWSR1 gene present
2	10	M	T(11;22)(q24;q12)	EWSR1 gene present

Acknowledgements

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

Source of Funding: Nil

Conflicts of Interest: None

References

1. Ewing J. Diffuse endothelioma of bone. Proc N Y .Patho Soc. 1921; 21: 17-21.
2. Worch J, Matthay KK, Neuhaus J, Goldsby R, Dubois SG. Ethnic and racial differences in patients with Ewing's sarcoma. Cancer 2010; 116: 983-988.
3. Ozaki T, Winkelman W, Willich N, Jurgens H. J Ortho Sci 1997; 2: 180-184.
4. Vora VG. Ewing's sarcoma, a report on 27 cases. Ind J Radiol Imag. 2008;18(2): 106-112.

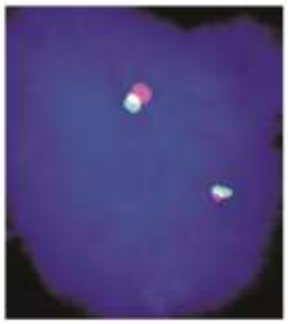
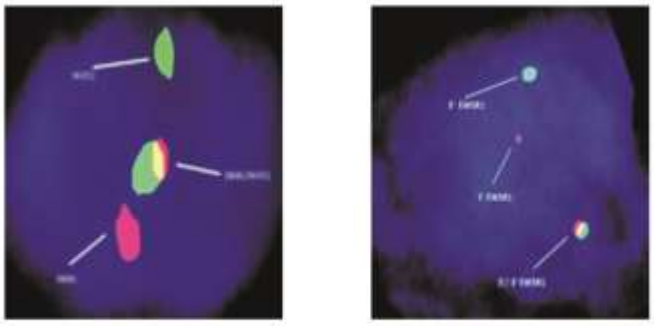


Fig.1:- Interphase cells with 2 green/orange fusion signals where EWSR1 gene absent indicating no Ewing's Sarcoma



Case.1 Case.2

Fig.2:- Interphase cells with 1 green, 1 orange and 1 green/orange fusion signals indicating EWSR1 gene with Ewing's Sarcoma.