



BBCI Newsletter

Director's Note

I am extremely happy to learn that the 10th issue of BBCI Newsletter will be released on 15th of February 2016. Over the years, Dr B Borooah Cancer Institute has contributed significantly in the field of medical education & research. Currently, two of our BBCI faculties are pursuing Ph.D programme under Srimanta Sankardeva University of Health Sciences, Assam on the 'Study of cancer stem cell markers CD44 and CD133 in human papilloma virus positive and negative pyriform sinus cancer' and on 'Clinical spectrum of carcinoma gall bladder of Apo-B-100 gene polymorphism in gall bladder patients of Assam'. In the DBT Centre for Molecular Biology & Cancer Research, BBCI, Ph.D research project on 'Role of Wnt signaling pathway in esophageal cancer from high risk region of North East India', 'Study of TGF-B, SIRT1 pathway and associated risk factors in esophageal cancer patients from North East India', 'Screening of molecular mechanism of breast cancer development and studying the efficacy of drugs using scaffold' and 'Association of pattern recognition receptors in severity of chronic liver disease in N.E. India' are ongoing under Gauhati University.



As per Population Based Cancer Registry of ICMR, incidence of cancer in Assam is third highest in the country. Many of the cancers encountered in the North Eastern States are amenable for prevention and early detection. There is an urgent need for public education on cancer. With this objective in mind, Dr B Borooah Cancer Institute has adopted Rani Community Health Centre, Assam with six sub-centres under its jurisdiction for community based cancer control programme in the month of January 2015. In addition to this, the Institute is engaged in similar programme in PHC, CHC and State Dispensary in the surrounding districts with the cooperation of the Directorate of Health Services, Govt. of Assam. Post Graduate students of our Radiation Oncology Department were trained in the Radio-biology Division of Tata Memorial Hospital, Mumbai. One of the MD students, Dr. Fahim Hasan was awarded one-month fellowship by National Cancer Centre, Singapore. During the last 3 years, faculties of BBCI have published 78 research papers, out of which 17 in national and 61 in international journals. Currently, there are 9 ongoing research projects funded by ICMR (Ministry of Health & Family Welfare) and the Department of Biotechnology (Ministry of Science & Technology).

To promote academics & research, Dr B Borooah Cancer Institute signed a Memorandum of Understanding with the Institute of Advance Study in Science &

Technology, Guwahati under the Ministry of Science & Technology, Govt. of India. Similarly, a Memorandum of Understanding was signed with the University of Manitoba, Canada in October 2015 for clinical, academic & research collaboration in the field of Head & Neck Oncology. Two-weeks summer training in Cancer Registry, Epidemiology & Biostatistics and Palliative Medicine was organized in July 2015. An update on recent advances in cancer and hands-on workshop on Molecular Biology Technique was conducted in collaboration with National Institute of Pathology, New Delhi in September 2015. Regional workshop on Head & Neck Oncology, National Symposium on Non-Hodgkin's Lymphoma and Workshop on Immunohistochemistry & Flow Cytometry are some of the other highlights during this period.

More than 10,000 new cancer patients report to Dr B Borooah Cancer Institute every year. Majority of them are tobacco related cancers. The Institute has teamed up with various organizations to work consistently for tobacco control.

I complement the Editor Dr. S. K. Medhi and all the authors and supporting staffs for their contribution to bring out the 10th Issue of the BBCI Newsletter.

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Ewings Family Tumours : EFT

A Rare Soft Tissue Neoplasm in Vulva

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Ewing's sarcoma and peripheral primitive neuroectodermal tumour (pPNET) are now regarded as two morphological ends of a spectrum of neoplasms, characterised by a t(11;22) or other related chromosomal translocation involving the EWS gene on chromosome 22 and referred to as Ewing family of tumours (EFTs). EFTs are extremely rare in the vulva and vagina.

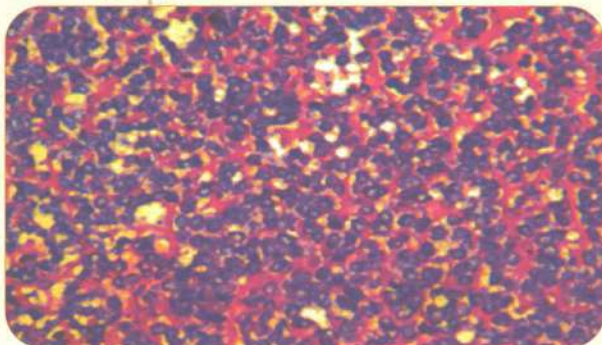
We intend to report this rare tumor and pleased to acknowledge the support of the attendants of the patient for providing necessary documents enriching the material worth publishing.

The Case :- Ms. DG, 16 yrs, female came to Gynaec. OPD in August 2011 with a rapidly growing vulval mass for the last 1 month with severe pain. On examination a 15x 10 cm vulval mass seen on the left side with no ulceration and intact skin. On investigations all her blood reports were normal, MRI showed highly vascular vulval mass with terminal urethral involvement. FNAC : Inconclusive. She was then taken up for tissue biopsy.

HPE : RCT Vulva IHC :- CD -45 -ve CK -Positive focally. Desmin- (+/-). Vimentin- (-ve) WT1-(-ve). CD 99- (+ve), FLI-+ve. A polyimmunophenotypic Tumour with morphology of RCT, favoring Ewing family of tumours (EFTs).



Clinical Photograph



An Undifferentiated malignant round cell Tumour

PLAN: CT with Vincristine, Etoposide and Ifosphamide (D1-D3). Received her 1st cycle on 9th September, but the tumor continued to grow in the same rapid pace and she expired on 10th day post chemo. EFTs are characterised by chromosomal translocation involving the EWS gene on chromosome 22 and referred to as Ewing family of tumours (EFTs). Demonstration of one of the characteristic translocations, by RT PCR or FISH may be regarded as the gold standard for diagnosis of EFTs. EFTs are extremely rare in the vulva and vagina, EFTs most commonly arise in young patients (the peak incidence is in the 20s) in recent years CD99 and FLI-1 antibodies have been demonstrated to be extremely useful in diagnosis and are positive in a large majority of cases. EFTs are aggressive with a poor prognosis. EFTs have rarely been described in the vulva and vagina and some of the reported cases have not had molecular or even immunohistochemical that is, CD99 or FLI-1 confirmation. CD99 is a cell surface glycoprotein encoded by the MIC2 gene. It is expressed with a membranous distribution in virtually all neoplasms in the EFTs. In the series of cases with molecular confirmation referred to earlier, all tumours were CD99 positive. However, CD99 is not specific for EFTs and may be expressed in a variety of other neoplasms, including some that can enter into the differential diagnosis, such as rhabdomyosarcoma, neuroblastoma, some lymphomas and leukaemias, Merkel cell carcinoma, mesenchymal chondrosarcoma, small cell neuroendocrine carcinoma and synovial sarcoma. Ovarian sex cord-stromal tumours and pancreatic islet cell neoplasms may also be positive. FLI-1 is a DNA-binding transcription factor which is involved in cellular proliferation and tumorigenesis, as well as in endothelial differentiation and blood vessel development. Besides being positive in normal endothelial cells and vascular neoplasms, FLI-1 is expressed (nuclear staining) in a large majority of neoplasms in the EFTs.

Take-home messages:

- ◆ Ewing's sarcoma and peripheral primitive neuroectodermal tumour harbour the same t(11;22) (q24;q12) chromosomal translocation in >90% of cases and are collectively referred to as Ewing family of tumours (EFTs).
- ◆ Cd99 and FLI-1 immunohistochemical analysis is useful in diagnosis and these markers are positive in a large majority of cases.

Chin repair with B/L VY advancement Mental artery island flap: A case reports & technique

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Anatomical basis of Mental artery flap :

The skin over the chin is supplied by the mental neurovascular bundle which emerges from the mental foramen. The inferior alveolar artery arises from the first part of the maxillary artery. It enters the mandibular foramen with the inferior alveolar nerve and a vein. It emerges from the mental foramen situated inferior to the space between the first two premolars or just below the 2nd premolar. The mental artery anastomoses with the submental branch of the facial artery below, the inferior labial artery above, and with its counterpart across the midline. Its accompanying vein drains into the facial vein or the pterygoid plexus. This neurovascular bundle supplies the anterior and lateral parts of the chin. The island flaps are based on this pedicle.



Case report and surgical technique :

A 40 yr old male presented with a recurrent squamous cell carcinoma in the chin. He was previously operated for carcinoma of the lower lip with wide excision with local repair and supraomohyoid neck dissection, after which he received post-operative Radiotherapy. He developed a recurrent tumor within four months of completion of radiotherapy. The tumor was 2x2 cm involving the chin and the gingivolabial sulcus, around 1 cm away from the lower lip margin. An OPG didn't show any bone involvement.

Wide excision with marginal mandibulectomy with supra-omohyoid neck dissection and local flap repair was planned. A defect of around 5x6 cm involving the chin and 3/4th of lower lip was created. Separate repair for lip and chin was planned. Bilateral mental artery based island flap advancement was planned for the chin and a bilateral Bernard Burrows flap was planned for the lip.

The Island Pedicled flap is a specialized advancement flap where an 'Island' is created, when skin is completely incised on all its three side. It has a rich vascular supply comes

from subcutaneous/ muscular pedicle and has exceptional flap viability and mobility. It is also called a V to Y advancement or Kite flap.

Two V shaped flaps were marked such that all resulting scars would be along the skin crease and closure would be in an anatomic unit. The full thickness flaps were dissected from the medial side and the neuro-vascular bundle emerging from the mental foramen identified. The area inferior to the space between the first and second premolar was used as a guide for the site of the mental foramen. After careful dissection both flaps were islanded as neurovascular pedicles and advanced medially to close the defect in the midline. The lateral defects were closed primarily in a VY manner.

For repair of the lower lip flaps like bilateral Karapundzic, Gate or Gillis flaps were considered but they weren't a viable option for the particular defect. Bilateral Bernard Burrow flap (Webster Modification) was finally planned for the patient. Horizontal incisions through skin from the commissure to melolabial fold were created and triangles/crescents of skin and subcutaneous tissue excised adjacent to melolabial fold. Facial muscle was not excised. Intraoral mucosal advancement flaps were created. Bilateral flaps advanced and sutured.

The described reconstruction produced an excellent cosmetic and functional result. The patient was fed nasogastrically for 5 days to provide adequate healing and resting time for the tissue. Thereafter fluids and diet were introduced

and patient discharged without any significant post-surgical complaints.

Discussion :

Surgical excision of tumour from lower lip and chin can result in large defect. Small defects may be closed directly by adequate undermining. Numerous local flaps have been described for repair of lower lip, like Karapundzic, Abbe eslander, Gate, Gilli, where tissue is rotated or transposed from the upper lip or melolabial area. But none can cover the chin.

Large defect in the chin can be repaired with local random or axial flaps. One option is to use transposition flap from the neck. Another option is to use islanded nasolabial for the sulcus and a platysmal mucocutaneous flap for the external coverage.

The V-Y advancement flap based on the mental artery has been described by Bayramicli et al. Flaps used for the repair of the chin cannot give a good aesthetic and a functional lip. So the best option was to use two separate flaps for the two defects with the most favorable and acceptable outcome.

Tobacco quitting at eight months post intervention in a community setting: Male vs. Female users of different tobacco types

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Tobacco is a well known preventable cause of death worldwide. India is the second largest consumer and third largest producer of tobacco¹. 34.6% adults in India are current tobacco users². Nearly 900,000 people die every year in India due to diseases attributed to tobacco³. Tobacco is used in various forms worldwide. North East India shows a very high prevalence of tobacco use. This study was taken up with objectives to analyze if there is any difference in quit rates depending on the different type of tobacco uses at eight months post intervention at a community setting, speculating if the quit rate in female tobacco users of varying patterns tally with their male counterparts so that specific intervention procedures towards better quit rate can be designed depending on the type of use and users.

Methodology:

A retrospective study on the community based data set where tobacco cessation counseling was provided at four blocks of Guwahati metro and follow up visits were done till eight months. The data set consisted informations registered during the period of 2009-2010. Subjects, both male and females of age > 15 years with mild moderate and severe category of tobacco addiction and giving consent for the cessation intervention were included in the study. Descriptive statistics was calculated and Chi square test was done to see the significance differences among categories.

Results and discussion:

750 households were surveyed and 2250 adults of >15 years were found out of which 809 were tobacco users. 800 total study subjects fulfilling inclusion criteria were registered. Out of the 9 excluded subjects all were males and 7 were tobacco chewers and 2 were smokers. From here it becomes obvious that in the study area, 36% adults were tobacco users. Irrespective of sex, smokeless tobacco use addiction is around 14%, 12% of the sample used in both smoking and smokeless form and 10% only smoked. Sex distribution of tobacco users showed 649 were male users and 151 were female users of tobacco in any form. 33% males only smoked and 42% used tobacco in both forms and 25.4% male users used smokeless tobacco. Out of 25% males users of smokeless tobacco majority used it in khaini form (16%). 94.6% female users used smokeless forms of tobacco. Out of these 94.6% females, 51% used betel quid with raw tobacco leaf and lime, 21% used khaini, 4% chewed zarda pan, 16% chewed guthkha and 2% used multiple smokeless products. Distribution of quitters according to their tobacco use habit irrespective of sex shown on table I. The different types of use and quitting tobacco showed no significant difference with Chi square value of 3.036, degree of freedom was 2 with P value 0.2191. In table II distribution of male quitters according to the type of tobacco use habit is highlighted. The association between different

tobacco use pattern and quit rate amongst males gave chi square=2.123, degree of freedom 2, P>0.05 which means no significance.

Table I : Distribution of tobacco quitters according to the type of use.

Habits	Users	Quitters	% Quit
Smoking Habit Only	221	103	46.6
Smokeless Tobacco Habit only	308	162	52
Smoking & Smokeless Habit	271	110	40.59

Table II : Male quitters distributed according to the type of use

Habits	Users	Quitters	% Quit
Smoking Habit Only	213	103	48.36
Smokeless Tobacco Habit only	165	85	51.52
Smoking & Smokeless Habit	271	110	40.59

The significance of difference between female quitters of tobacco according to the type of use was tested by Chi square test (Table III). On comparison between different use type and quit rate it was found statistically significant with value of Chi-square statistic 4.311, at degree of freedom 2 and P value was 0.379.

Table III : Distribution of female quitters with different tobacco use habit.

Habits	Users	Quitters	% Quit
Smoking Habit Only	8	0	0
Smokeless Tobacco Habit only	142	78	54.9
Smoking & Smokeless Habit	0	0	0

Hence, quit rates amongst the users of different types of tobacco at eight months post intervention irrespective of sex difference, interesting finding observed was that maximum number of quit rate was amongst the users of smokeless tobacco (52%). Those who were using both smoking and smokeless forms of tobacco showed the least quit rate (40.59%). The smokers showed quit rate in between these two groups (46.6%).

But astonishing fact that has been observed was that no female smoker's quitted tobacco where as 48.36 percent male

smokers quitted the habit as recorded at eight month visit post intervention follows up at community setting. We tried to compare the difference of quit rate in male vs. female smokers. This is a question raising situation that is it that female smokers are more hard core addictive in contrast to their male counterpart.

Conclusion & Recommendation:

Males were found to use both smoking and smokeless forms of tobacco predominantly and females were predominant users of smokeless forms. Majority of the women used areca and betel leaf with lime and raw tobacco. Quit rates as such did not differ significantly based upon the type of tobacco use irrespective of sex of the user. No such quit rate difference had been observed in intra-group comparison between male users of different types of tobacco. In case of female, quit rate for smokers was zero and the difference of quit rates amongst smokers and smokeless tobacco users was statistically found to be significant. The quit rate difference between male and female smokers was quite alarming. To know more about this disparity more research is needed in this field. In this intervention study we used only counseling as an intervention

tool. For better quit results amongst users of tobacco, capacity development of the tobacco cessation service providers, towards use of Nicotine replacement therapy (NRT) or other adjuncts should be given more emphasis on. Counseling for cessation at both clinics based and community settings should be added by liberal use of NRT and chemo interventions for more challenging patterns of tobacco use for example those who uses both, i.e. smoking and smokeless forms and female smokers.

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To address the cancer burden in NE India

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In the North East India like the rest of the country, there is a wide disparity in both the diagnosis and treatment of cancers, which are mostly due to lack of awareness, socio-economic conditions, and difficulty to access the facilities for cancer diagnosis and treatment. Furthermore, as affordability of cancer care remains a major challenge in India for effective cancer control, and hence in the North East India this problem will be more pronounced. The age adjusted incidence rates of cancers of the gall bladder, stomach cancer, esophageal cancers, tongue cancer in females and nasopharyngeal cancers is highest in the North East part of India. Furthermore, it has been seen that the incidence of cancer in India is highest in the North Eastern region of the country. As a metrics of cancer burden, the incidence and cancer mortality is commonly used in Indian context. Global cancer transition study has shown that, the burden of cancer in countries with low human development index is higher. This is especially true for the region from remote North-East states. So, it calls for the pressing need for improving resources for cancer care and treatment in the North East India. Also, efforts towards cancer prevention will be immensely helpful to lower the burden of the disease in this part of the world.

Cancer prevention studies in have remained as a domain for cancer epidemiologists. However, the combined role of physician oncologists, basic researchers and cancer epidemiologists for cancer prevention and control cannot be underscored at any point of time. Analytic molecular and epidemiologic studies on a leading cancer of the NE region like esophageal cancer have shown the role of dietary habits, molecular and genetic factors. Also, analytic epidemiological researches are required using molecular biomarkers for prognostication of common cancers of the region, which somewhat differs from rest of India. Emphasis on screening programs for common cancers in North East India like the uterine cervix, oral cavity and breast should be laid. Currently, few organized screening programs for these cancers are ongoing in India, but none in this region. One of the noteworthy

mentions is that, Dr.B Borooh Cancer Institute has been conducting awareness and common cancer screening at Rani Community Health Centre on a regular basis for the last one year. Similar initiatives by likeminded organizations will go a long way to address the lacunae of community-based cancer control program in the country and NE in particular. The right path to tackle the cancer burden in North East India is by proactive participation in cancer research by all the stake holders.

Acknowledgement:

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Significance of High Risk HPV Infection in Head and Neck Cancer Patients of North-East India

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The population of NE region represents unique ethnicity, distinctive life style and food habits which can play important role in the complex interplay of environmental and genetic factors that may be associated with high incidence of Head and Neck cancer (HNC) in this region.

HNC is a multifactorial and multiphasic disease which affects anatomical sites such as lip, oral cavity, nose and paranasal sinuses, nasopharynx, oropharynx, oral cavity, hypopharynx, larynx etc. The crucial risk factors are tobacco, alcohol consumption, betel nut chewing, changing sexual behavior etc. which are responsible for the majority of HNC burden. In HNC patients of 50 years and above age, associations with the above key risk factors are more predominant. Tobacco smoking and alcohol related carcinogens play important role in development of HNC probably through immune suppression. In the extracellular and intracellular compartment, cigarette smoke generates particulate matter, gaseous extracts and water solutes. Major classified mutagenic and carcinogenic components of cigarette are nicotine, tar, ammonia, carbon monoxide, carbon dioxide, formaldehyde, acrolein, acetone, benzopyrenes, hydroxyquinone, nitrogen oxides and cadmium. Tar and nicotine of the cigarette smoke affect innate immune response and increase the susceptibility to infections. Alcohol consumption is also considered as one of the risk factors which may contribute to carcinogenesis. The International Agency for Research on Cancer of the World Health Organization has categorized alcohol as a Group 1 carcinogen.

Human Papillomavirus (HPV) was advocated first time by Syrjanen et al (1983) as a risk factor especially for oropharyngeal and oral cancer. In subset of HNC cases, HPV association have been acknowledged in younger age group (<50 yrs) patients without habit of tobacco and alcohol consumption. The HPV genomic DNA was mostly detected by PCR based method and studies have shown that up to 60% of HNC cases may be HPV positive. The causal association between HPV and head and neck cancer remains contradictory due to conflicting evidences. HPV association with HNC has assumed significance due to the findings that HPV positive HNC cases have good prognosis as compared to the HPV negative cases. The possible routes of transmission of HPV in HNC may be oral sexual behaviour in adults and perinatal transmission in the neonatal children. In particular, the oral cavity, pharynx and larynx, epithelial cells are more susceptible to HPV infection. HPV types are classified as high-risk (HPV-16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73 and 82) and low-risk (HPV-26, 30, 34, 53, 66, 67, 69, 70, 73, 82, 85) on the basis of their carcinogenic potential. HPV-16 and HPV-18 high-risk type have been considered as major contributory genotypes in HNC.

The master cell cycle regulators, p53, pRB and p16 are important tumor suppressor genes having significant role in cell cycle regulatory pathway and cancer. These genes play important role in maintaining genomic integrity and cell cycle, and control of apoptosis. The High Risk HPV (hr-HPV) types 16 and 18 principally exercise their carcinogenic potential through the expression of E6 and E7 oncoprotein. The E6 oncogene activation leads to degradation of p53 through its interaction with the E3 ubiquitin ligase E6AP. The active E7 degrades the retinoblastoma tumor suppressor protein (pRb) due to which transcription factor E2F is stimulated and results in overexpression of p16 INK4A, a cyclin-dependent kinase inhibitor. By

evading the above mentioned master guardians of cell cycle, HPV genes take control over the cellular proliferation that leads to uncontrolled cell division. There is lack of sufficient data on the hr-HPV status in HNC cases of NE India. We recently published an article in PLoSOne which investigated the prevalence of hr-HPV infection and their association with betel quid chewing, smoking, tobacco, alcohol consumption and clinico-pathological characteristics of patients. E6 nested multiplex PCR method was used for the sensitive and type-specific detection of HPV infections based on the amplification of the viral E6/E7 oncogene. The Hybrid Capture 2 (HC2) test, which is FDA-USA approved and WHO recommended for detection of HPV in clinical specimens of cervical intraepithelial lesions (CINs) have been applied for the first time for hr-HPV detection in HNC specimens of NE India.

Our study provides evidence about significantly increased vulnerability for hr-HPV infection in tobacco chewers and alcohol drinkers mostly in oral cavity cancer patients. Our observation is well supported by previous HNC studies from India and worldwide. The alcohol drinking and tobacco chewing/smoking are widespread habits in North-East Indian population. In North-East India, HPV, tobacco, alcohol and HNC complex relationship can only be better understood through extensive research in future.



Representative image of Agarose Gel (2%) electrophoresis showing HPV Type-specific E6 Nested Multiplex PCR (NMPCR) Product. Lane 1, 2, 3: HPV-16 HNC cases; 4, 5: HPV-18 HNC cases; 6: HPV Negative HNC cases, M= 100 bp DNA Ladder. Amplified NMPCR product size were 457 bp (HPV 16), 322bp (HPV18).

Full Text of our above mentioned published article can be accessed by using the below detail:

Kumar R, Rai AK, Das D, Das R, Kumar RS, Sarma A, et al. (2015) Alcohol and Tobacco Increases Risk of High Risk HPV Infection in Head and Neck Cancer Patients: Study from North-East Region of India. PLoS ONE 10(10): e0140700. doi:10.1371/journal.pone.0140700

New consensus for fertility conservation in young endometrial cancer patients

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Introduction:

Approximately, 5% of endometrial cancer affects patients younger than 40 years. Risk factors of endometrial cancer like obesity, polycystic ovarian syndrome, Lynch Syndrome mainly manifests in young women. Of late, postponement of childbearing is becoming more common; thus a potential number of premenopausal nulliparous women will be diagnosed with endometrial cancer. In endometrial cancer, irregular bleeding is often an early and common symptom. As much as 90% of these tumours will be detected as grade I well-differentiated endometrioid endometrial cancer. Standard management with hysterectomy, bilateral salpingoophorectomy, bilateral pelvic lymphadenectomy, and/or para-aortic lymphadenectomy confers an excellent 5-year overall survival rate of 93% and 99% disease specific survival. But this standard management adversely affects the quality of life and kills the reproductive prospect of young woman. Recently, a new consensus for a safe, feasible and optimal fertility conserving management in early endometrial cancer for the young patient has evolved in our clinical parlance. This review article aims to elucidate the recent update and consensus on the management of early endometrial cancer in young reproductive women and NCCN states them as category 2A evidence.

Patient Selection Criteria:

- ◆ Only Grade I Stage I A (without myometrial invasion) well differentiated endometrioid endometrial cancer (EC) are eligible for fertility conserving options.
- ◆ Dilatation and curettage is the preferred method to obtain the histology.
- ◆ All specimens should be endorsed by two pathologists.
- ◆ Enhanced MRI scan is the preferred option for establishing the depth of myometrial invasion. Transvaginal ultrasonography is a viable alternative for assessment.
- ◆ No contraindication to medical treatment or pregnancy.
- ◆ Synchronous ovarian malignancies should be ruled out by Transvaginal ultrasound or CT scan. Diagnostic laparoscopy may be advised to explore the cause of infertility and to rule out any adnexal mass.
- ◆ Routine check for progesterone receptor (PgR) is not necessary but PgR-positive expression patient response better than PgR-negative patients.
- ◆ Young patient with a relevant family history may be advised for genetic testing.

Treatment Modalities:

- ◆ Counselling and offering all the options with evidence based facts to the couple. Both verbal and written consent should be documented. Patient should undergo clear counseling that fertility sparing option is not standard of care for the treatment of endometrial cancer. Consultation with a fertility expert prior to therapy is recommended.
- ◆ Medroxyprogesterone Acetate 400 to 600 mg/day or Megestrol Acetate 160 to 320 mg/day. Levonorgestrel Intra-uterine device (LNG-IUD) is another alternative.
- ◆ Duration to achieve response should be at least 6 months.
- ◆ First Dilatation and curettage to check for response should be done at 3 to 6 months.
- ◆ Complete response is defined as absence of any form of hyperplasia. In case of complete response at 6 months; it is advisable to pursue pregnancy earlier rather than later because the rate of recurrence is up to 40%. For patient not willing to conceive immediately; low dose cyclic progesterone or LNG-IUD should be offered. Surveillance should be done every 3 to 6 months.
- ◆ The recurrence rate after conservative management is

reported between 30% and 40% and the median time of recurrence is 15 months. A significant number of women will have recurrence even before their family is completed. In case of recurrence in initial complete responders; re-treatment with progestins seems to be a viable option.

- ◆ Hysterectomy with or without bilateral salpingoophorectomy and long term follow up should be advised once their family is completed. Patients with persistent disease proven by dilatation and curettage should be counselled for hysterectomy as the definite treatment. The partial responders (complex atypical hyperplasia) at 6 months of treatment could be offered continuation of treatment with medroxyprogesterone for another 3 to 6 months.

Conclusion:

About 75% patient will show complete response to above treatment modalities. Assisted reproduction techniques are safe and give better results (live birth rate up to 40%) than awaiting spontaneous conception as it helps in overcoming the concomitant infertility issues. The mortality associated with conservative treatment of endometrial cancer is extremely low despite of the high rate of recurrence. This is mainly because any persistence or recurrence of the disease can be salvaged by hysterectomy without compromising the excellent prognosis. Metformin has shown anti-proliferative action on the endometrial cancer cell growth and thus holds a future promise of its use in combination with progesterone. Needs and expectations should be addressed with individualized care and realistic goals. This new evidenced based recommendations advocate a window of opportunity for fertility sparing in young endometrial cancer patients.

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Oral Pyogenic Granuloma with involvement of the Mandible: A case report

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We present here a case of pyogenic granuloma in a 65 yrs old female with involvement of the mandible which mimicked malignant pathology due to its rapid growth.

Case report:

A 65 yrs old Hindu female presented in Head and Neck Oncology OPD of our Institute in November 2015 with a swelling in the anterior segment of oral cavity involving the gums. It started as a small painless swelling 1 month back and rapidly increased to its present size within this period.

On examination, a 7x6 cm sessile growth seemed to arise from lower gingiva in the mid-third region with overlying ulceration at places which bled on provocation. There were no palpable neck nodes. Pre-operative punch biopsy report gave a diagnosis of Capillary Hemangioma; however some malignant pathology was also suspected because of its unusual presentation and rapid growth. CT scan showed a lytic lesion involving the mid-third mandible with bone destruction.

Patient was planned for Surgery; Wide excision of the tumour was done along with Mid-third Segmental mandibulectomy. Bony defect was repaired by Titanium reconstruction Plate and mucosal defect was repaired locally. Post-operative Histopathology report revealed Pyogenic Granuloma.



Pre op. I



Pre op. II



Bony Plating



Intra -op defect



Defect Closure



Post op.

Discussion:

Pyogenic granuloma is benign mucocutaneous lesions which are usually solitary and vascular. They may be found in the oral cavity or extraorally. Lesions in the oral cavity are usually found in the anterior segment over the gingiva, followed by lip, tongue, buccal mucosa. They appear as an overgrowth of tissue due to irritation, physical trauma or hormonal factors. The tissues react in a characteristic manner resulting in overzealous proliferation of vascular type of connective tissue. Poor oral hygiene may be another precipitation factor.

The treatment of pyogenic granuloma depends on the severity of the symptoms of the lesion. If it is small, painless, then observation

and follow-up are advised. If it is huge, surgical excision and removal of causative irritants are among the choices of treatment. Some other modalities include Nd-Yag laser, Pulsed dye laser, Cryosurgery etc. Recurrences are believed to result from incomplete excision, failure to remove etiological factors or injury to the area.

Conclusion:

Pyogenic granuloma may present with unusual features with unusual size. In such situations, treatment plan should be altered accordingly and surgical excision should be done. Good oral hygiene maintenance and regular follow-up can prevent recurrence of such lesions.

BBCI adopts rural health center for cancer awareness and early detection

Manigreeva Krishnatreya, Srabana Misra Bhagabaty

Keeping in mind the clarion call of our Hon'ble Prime Minister to the parliamentarians for adopting a village for its all round development, Dr.B Borooah Cancer Institute (BBCI), an autonomous institute took up a similar initiative last year. BBCI adopted the Rani Community Health Center (CHC) located at rural Kamrup District on the 3rd January 2015 for facilitating the people of that area for improving access to early diagnosis of cancer through screening and awareness. Rani CHC serves for a total population of over 19,000. This initiative has received necessary support from the Directorate of Health Services, Government of Assam. Director of BBCI Dr.Amal Chandra Katakati was instrumental in adopting Rani CHC for starting the rural cancer detection center. According to the World Health Organization, 1/3rd of cancers are preventable, 1/3rd can be detected at an early stage, and 1/3rd will require palliative care due to its advanced stage at presentation.

Cancer screening and awareness camps are conducted every month on the third Monday. In the last one year, 12 screening and awareness camps have been conducted. There are over 200 beneficiaries of early cancer screening camps and most of them were from BPL or low income families. And, approximately 1000 people from the area were made aware on early symptoms and signs, and preventive strategies for common cancers. The institute has also trained up nurses, ASHA and Anganwadi workers under Rani CHC for creating awareness amongst the masses. This type of "Training the Trainer" model is a useful tool for cancer control programs. It is believed that the benefits of such awareness camps will be obvious in the long run.

Application of advanced Intracavitary Brachytherapy technique at Dr. B. Borooah Cancer Institute

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Radiation Oncology Department,
Dr. B. Borooah Cancer Institute, Guwahati

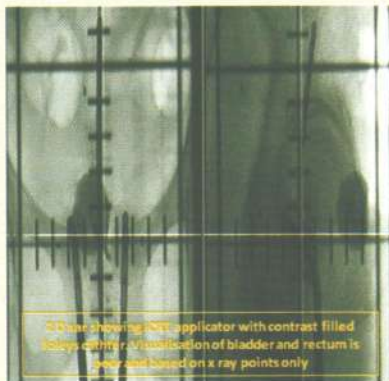
The main divisions of radiotherapy are external beam radiotherapy and Brachytherapy. The aim of modern radiotherapy is to deliver a highly conformal and homogeneous dose to the target volume and at the same time to spare organs at risk. Brachytherapy is a short-distance treatment of malignant disease with radiation emitting from small sealed (encapsulated) sources. The sources are placed directly into the treatment volume or near the treatment volume. The sharp dose fall off in brachytherapy allows high dose delivery to the target with very less dose to the surrounding normal tissues. Brachytherapy plays a crucial role in the management of invasive cervical cancer.

Since august 2014 BCCI has also started doing ICBT (Intra Cavitary Brachytherapy) with 3D - CT and MRI based technique which is more advanced and better than 2D X-ray based planning system

From 2D to 3D

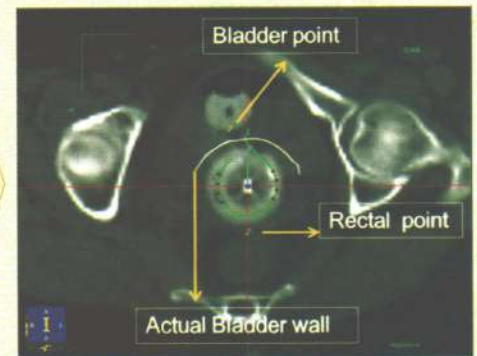
ICBT is mainly used for treatment of the cancer of the cervix, uterine body and vagina. Various applicators are in use to hold sources in an appropriate configuration in the tumor volume. A cervical applicator consists of a central tube (tandem) and lateral capsules (ovoids).

2D or X-ray ICBT lacks the information about target (disease), soft tissue, cervix, uterus, parametria, sigmoid colon, small bowel. However, we can visualise Bladder neck, Vaginal mucosa (radio opaque gauze) and Rectum (markers) with some modifications. The orthogonal radiographs are taken at right angles, with the central axes of the x-ray beams meeting approximately in the middle of the implant. The applicators are loaded with dummy sources while radio graphing the patient. Dose Specification in planning is using Manchester System. It is characterized by doses to four points: Point A, Point B, Bladder point and Rectum point.



In 3D CT scan or MRI based planning the patients undergo a scan (CT/MRI) after the applicator is inserted. Compared to X- ray the CT/MRI gives better soft tissue visualization and delineation. The main advantage of CT/MRI is that instead of point dose we can directly assess the volumetric dose to the whole organs (fig) and determine or change the planning and dose constraints. Many studies now focus on the need for volumetric doses to the organs at risk (OAR's) like Bladder, Rectum and Sigmoid rather than the point doses used previously. The introduction of EQD2 (equivalent dose calculated at 2 Gy) give more advantage in getting closure to the dose escalation to the target and at the same time getting more precise information about the OAR doses. 3D planning can also help in preventing the no of cases which will develop grade III/IV bladder and rectal toxicity (Cystitis and Proctitis). Also in some studies it was found that the dose to the sigmoid colon also leads to PR bleeding complaints due to high doses received during brachytherapy. Sigmoid colon can also be delineated and dose constraints can be seen in 3D planning which is not possible in 2D planning

Figure showing the CT scan based 3D image with excellent visualization of actual bladder and rectal walls



Imaging protocol CT

CT slice should be 3-5 mm slice thickness which comfortable in catheter construction. For better identification of catheter, we can put maker in applicator but it produces artifacts to the CT image.

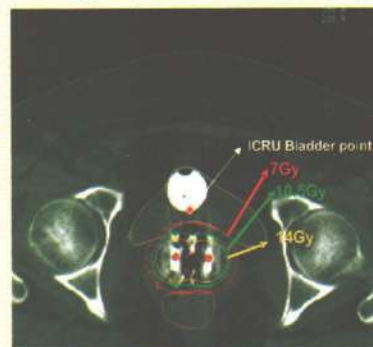


Figure showing the CT scan based 3D image with dose ICRT distribution. The bladder point is actually getting less dose, while the actual bladder wall which is better visualized on CT scan is getting high dose. So the 2D x ray based system actually creating false impression of safe dose to bladder when actually its receiving very high dose

Imaging protocol MRI

Usually, magnetic field of MRI used 1.5 T / 3.0 T / 0.5 T open MRI with body coil. Fast spin echo T1 and T2 para axial (true), sagittal, and coronal (in the plane of central tandem) sequences. The Slice should be 34 mm thick slices and 0.1 mm slice gap. T1 images more helps in catheter identification and reconstruction. T2 series helps to identify and delineate the disease.



Conclusion: The proper treatment of cancer, we need to identify target (tumour). With development of science different technique of imaging are introduced. MRI has been clearly demonstrated to be superior to any other imaging procedure in cervical cancer allowing an accurate delineation of the tumor

Pediatric Cancer Our Experience

Ms.Rashmi Das (Social Worker), Ms.Monalisha Hazarika (Data Manager)

Dr B Borooah Cancer Institute, Guwahati

Cancer in children is not very common and biologically quite different from adult cancer. Yearly around 160,000 new cases of children below 15 years of age are diagnosed with cancer worldwide, with approximately 90000 deaths attributed to cancer. In India, approximately 45,000 children are diagnosed with cancer every year. The proportion of childhood cancers relative to all cancers reported by Indian cancer registries varied from 0.8% to 5.8% in boys, and from 0.5% to 3.4% in girls. Being closely associated and dealing with these unfortunate children we have seen that although more than 90% childhood cancer is curable by literature, but the picture is not same here. Dr. BCCI is the only RCC in the State that serves the patients from all over North East India and in this institute from last three years more than 200 cases are diagnosed newly per year. In North- East India, where incidences of most of the adult cancers are very high, there is an urgent need for proper definition of the problem of childhood cancer patients too, so that we can receive a cure rate as high as that in develop countries. We have noticed that it is not possible for parents to carry out treatment without financial help and proper accommodation because most of these patients come from poor family (BPL, Lower APL etc.) to this RCC.

Advances in chemotherapy, radiation and other source of help and support in time have gained remarkably high potential for cure among childhood cancer to some extent.

To assess better treatment to a extent our whole JDF (JIV Daya Foundation, USA) team of pediatric department is trying to help the children in various ways like free medicines, accepting donation in cash and kind from donors, active follow up so that they don't miss their treatment and monthly session on Health, Hygiene & Nutrition for patients, we even co-ordinate with different health institutes within and outside the region so that treatment cost can be reduced. Every year we organize street play, awareness program in school and colleges, celebrate festivals, outing for both children and their parents with the help of different NGO's.

We also maintain a Pediatric database with the help of India Pediatric Oncology Database which is the largest software for pediatrics in the World which indeed help us to track the survival status of each patient.

Thus, proper diagnosis in time and appropriate policies can be introduced to improve survival. This observation will throw light on the causes of refusal and abandonment of treatment which is the leading cause of treatment failure in pediatric cancer cases in the developing world.

Glimpses of some Activities:



Cake cutting on the eve of Children's Day Celebration 14 Nov



Awareness on childhood cancer through Street Play



14th ICCD 2015 opening ceremony



Outing to State Zoo on the eve of 14th ICCD 2015



Awareness programme in a girl's college 2014.



Survivor day & Interactive session with patients & their parents 2014

Govt. schemes available to help cancer patients they are

- ◆ Health Minister Cancer Patient Fund under RAN.
- ◆ NRHM (Arogya Nidhi).
- ◆ Sneha Sparsha scheme under assam Govt. for children below 12 yrs. (GMCH)
- ◆ Rastriya Swasthya Bima Yojana under the Ministry of Labour and Employment (Govt. of India).
- ◆ Mukhya Mantri Jivan Jyoti Anchoni (District Social Welfare Office).
- ◆ Welfare of the Plain Tribe (WPT) - SC/OBC
- ◆ Ambedkar Medical Aid for Surgery -SC/ST
- ◆ Rashtriya Bal Swasthya Karyakram (NRHM).
- ◆ Prime Minister Fund.
- ◆ Chief Minister Relief Fund.
- ◆ Health Minister's Discretionary Grant.
- ◆ NGO's

Fund raised from the last 3 years (excluding Govt. Schemes).

1. Year 2013 - Rs.1,84,514/-
2. Year 2014 - Rs. 2,07,857/-
3. Year 2015 Rs. 2,30,328/-

Our strategies:

- ◆ To make a blood donors directory.
- ◆ To raise more funds & to involve more NGOs.
- ◆ To create awareness about hygiene among the patients and attendants.
- ◆ Try to build a home away from home.

Sl. No.	Cancer Type	No. of Patients	No. of Patients (%)
1	Leukemia	34	19.65%
2	Retinoblastoma	23	13.29%
3	CNS Tm	19	10.98%
4	Lymphoma	15	8.67%
5	Kidney Tumor	7	4.04%
6	Bone Tumor	6	3.46%
7	Germ Cell Tm	6	3.46%
8	Rhabdomyosarcoma	5	2.89%
9	Ca Nasopharynx	5	2.89%
10	Neuroblastoma	2	1.15%
11	Rosai Dorfman Disease	2	1.15%
12	Granulocytic Sarcoma	2	1.15%
13	Ca Rectum	1	0.57%
14	LCH	1	0.57%
15	Dermatofibrosarcoma Protuberans	1	0.57%
16	Adrenocortical Carcinoma	1	0.57%
17	Ca GB with liver metastasis	1	0.57%
18	Ca Parotid (L)	1	0.57%
19	Extracranial extrarenal Rhabdoid	1	0.57%
20	Malignant Fibrous Histiocytoma	1	0.57%
21	Non-small cell carcinoma of lung	1	0.57%
22	Non-Malignant	8	4.62%
23	Not-diagnosed	30	17.34%

An overview of the Project "Patterns of Care & Survival Studies on Cancer Cervix, Cancer Breast & Head & Neck Cancer"

Mrs. Deepsikha Barman, Mrs. Chandamika Das (Social Investigator)

Mr. Sanjay Das (Computer Operator)

POCSS, Dr B Borooah Cancer Institute, Guwahati

POCSS which was started at Dr. B. Borooah Cancer Institute from Oct' 2006 has come a long since its inception. All the patients suffering from cancer Cervix, Breast & Head & Neck Cancer are included in the study. The basic methodology of this project envisages capturing core patient, identifying information with details of clinical stage, types of treatment and follow-up parameters as per standards specified. The study was started with the following objective.

1. To obtain the details of clinical stage & types of treatment in the Hospital Based Cancer Registries under the National Cancer Registry Programme (NCRP) & in other selected canter & medical colleges across the country.
2. To obtain clinical stage & treatment based survival in all registered and treated patients at this center. Sixteen Institutions are participating in this.

The NCRP is aiming to obtain information from all Hospital Cancer Registries which are in the NCRP Network. It is Multi-centric study. Since hospitals are the main sources for obtaining information on the clinical status, treatment and follow up information, utilization of this network would help immensely to obtain varied information of the pattern of cancer, diagnostic, treatment and follow-up information for these cancers. There is no unified national database on survival of

cancer patients in India and NCRP would like to develop this for better patient care and as an useful research material.

Follow-up is the main component of this study & the success of this project depends on the percentage of the patients being followed-up.

Survival Analysis Table (*Patients Treated only at Reporting Institute*) period of follow-up 12 months.

Sites	Diagnosed Year	Treated only at RI#	Alive (A)	Dead (D)	(A+D)	Follow-up
Ca Cervix	2006-2014*	903	702	127	829	91.8
H & N Ca.	2006-2012*	2725	1661	613	2274	83.4
Ca Breast	2006-2011*	264	209	37	246	93.2

*Data Collection for the year 2012, 2013 & 2014 is going on.

Radiotherapy and concurrent chemo-radiotherapy in locally advanced hypopharyngeal cancers - A hospital cancer registry based analysis

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Dr B Borooah Cancer Institute (RCC), Guwahati

Abstract:

Background and objective:

The survival of patients with hypopharyngeal cancer is lower amongst head and neck cancers. The incidence rates of hypopharyngeal cancers in our population are amongst the highest in the world and there is limited data available on the literature on varied responses to first course of treatment with radiotherapy (RT) and concurrent chemo-radiotherapy (CRT) in hypopharyngeal cancers from our population.

Material and methods:

Clinical characteristics and initial responses to treatment in patients who had received radiotherapy and chemo-radiotherapy in a regional cancer center from January 2010 to December 2013 were evaluated. The data was obtained from the hospital cancer registry, and analysis was carried using descriptive statistics. Pearson's chi-square was used to test for differences in the variables and $p < 0.05$ was considered statistically significant.

Results:

A total of 554 patients were included for the analysis, 411 (74.2%) patients received RT and 143 (25.8%) patients had received CRT. There was significantly lower number of patients above 70 years with a higher proportion of patients below 50 years who had received CRT ($p < 0.05$), 79.3% and 84.6% of patients in the RT and CRT group respectively presented with a favorable performance status, and in the RT group 240 (58.4%) showed CR, and in the CRT group 103 (72.0%) showed CR at the first follow-up ($p < 0.05$).

Conclusion:

Concurrent chemo-radiotherapy gives better short term response to treatment in locally advanced hypopharyngeal cancers.
Keywords: Hypopharyngeal cancers, Radiotherapy, Chemo-radiotherapy, Responses to Treatment.

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