



EXCELLENCE IN
CANCER CARE

NCCI Neurospinal & Cancer Care Institute

M. HASHIM MEMORIAL TRUST



أفضل الأشغال خدمت الناس

PAKISTAN GAMMA KNIFE & X-KNIFE RADIATION ★ PET CT & PET-GUIDED RADIOTHERAPY ★ NEUROSPINAL & MEDICAL SERVICES

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NEUROSPINAL AND CANCER CARE INSTITUTE

NCCI, Neurospinal Cancer Care Institute, previously known as NMI Hospital, is serving the nation since 1995, with an excellent track record for the best patient care and satisfaction, where every patient is assured of receiving safe, prompt and courteous care.

Since its establishment, NCCI continues to transform as we aim to serve the humanity with the latest technology and high quality standards. With the grace of God, NCCI is the pioneer in Pakistan in offering the latest state-of-the-art Stereotactic Radiosurgery with combination of Leksell Gamma Knife (Brain) and X-Knife or Synergy-S (whole body) Radiosurgery, which offers intra cranial as well as extra cranial (whole body) radiosurgery for malignant and non-malignant tumours, metastatic lesions, vascular malformation and other brain diseases, with the help of state-of-the-art diagnostic facilities including PET / CT Scan (64 Slice), MRI open and high strength MRI 1.5T, 16 slice CT Scan, EEG, EMG, X-Ray, Ultrasound, Laboratory, 24/7 Pharmacy, ICU with Ventilators, highly equipped OT, in/out door patient care, under supervision of highly qualified surgeon doctors who work far exceeded the expectations of the patients and their families. All with the spirit of serving the nation with the most advanced diagnostic and therapeutic medical technology.

In addition to general, specialized neurosurgery like microsurgery, stereotactic surgery (Biopsy and movement disorders), neuroendoscopy, skull base, paediatric neurosurgery, other disciplines of medicine including Neurology, Neuropsychiatry, Orthopaedics, General Medicine, General Surgery, ENT are also being practiced by eminent clinicians.

NCCI is providing Stereotactic Radiosurgery on Leksell Gamma Knife ICON and Synergy-S, These are wonderful, most recent, one and only SRS machines in Pakistan and in neighboring countries.

Management of NCCI cordially invites you to visit us, which will help in better treatment planning for your patient and your consideration of availing better option of Stereotactic Radiosurgery for your patient.

Stereotactic Radio Surgery (SRS)

It is a form of treatment in which high dose of radiation is delivered to stereotactically defined target to produce radio-biologic response in one to maximum of five sessions, while sparing the surrounding normal tissues, total accuracy is claimed to be 0.4mm. Rapid development in neuro-imaging Stereotactic techniques and robotic technology in the last decade have contributed to improved results and wider application of Radiosurgery. The role of Radiosurgery has expanded beyond its initial application. Stereotactic Radio Surgery is not a new name anymore. Famous Neurosurgeon Lars Leksell coined the term Stereotactic Radio Surgery. Pakistan's first ever Gamma Knife and Synergy-S Stereotactic Radio Surgery started in May 2008 at NCCI. Patients from all over Pakistan and neighboring region, between pediatric to elderly age group, with various indications have been treated by using 201 source Co-60 Leksell Gamma Knife ICON and Synergy-S (Linear accelerator based). A multi disciplinary team of Neurosurgeons, Radiation Oncologist and Radiologist etc. decides the treatment plan for the patient after having all necessary work up done.

Stereotactic Radiosurgery is an excellent treatment modality for patients who are medically inoperable, pediatric and elderly patients, and for those who require re-radiation (who have already been treated with conventional radiotherapy).

Gamma Knife SRS (Brain Specific)

Gamma Knife is designed specifically for Brain. Gamma Knife, as the name indicates, is not a knife in real sense. Doctor makes no incision on patient's head. Instead, very precisely focused beams of radiation are directed to tumour. Treatment procedure is simple, painless, bloodless, highly précised and day care treatment. During treatment patient can listen audio tape and normally go home the same day.

In this treatment process, Nucleic Acid strands in DNA are broken and Protein biosynthesis is stopped. It stops Tumor Cells dividing, abnormal blood vessels to occlude and make neurons stop firing electrophysiological activity. Gamma Knife treatment is highly effective in; **Brain Tumors**, like, Acoustic Neuroma, Meningioma, Pituitary adenoma, Craniopharyngioma, Glomus Jugulare, Pineal region Tumors, etc. **Brain Metastasis** (single or multiple). **Vascular Malformations** like Arteriovenous malformations, Cavernomas, **Orbital Tumors** like Melanomas and metastasis. **Functional Disorders** like Trigeminal neuralgia, Intractable pain and Epilepsy, Movement disorder, Obsessive Compulsive Disorder (OCD). And for those cases who are not fit for surgical intervention due to their illness or advanced age children.

Synergy-S or Linac Based SRS (Whole Body)

Synergy-S or Linac Based is an ideal extra-cranial complement to Leksell Gamma Knife, as combination of both creates Stereotactic Center of Excellence. Synergy-S is dedicated both for intra-cranial as well as extra-cranial applications. Synergy-S is an image guide robotic, digitally controlled linear accelerator and provides Image Guided Radiation surgery (IGRS) and Image Guided Radiation Therapy (IGRT). It has maximum accuracy in advanced Stereotactic Radiosurgery with reference to spinal application, like spinal metastasis. Its 2-D and 3-D image guided accuracy enables effective SRS and SRT for small and large field lesions whether intra-cranial or extra-cranial. Synergy-S or X-Knife (Linac Based) is best effective in; **Brain Tumors**: Primary & recurrent high and low grade Gliomas, **Brain metastasis** (single or multiple), **Benign brain tumors** (pituitary adenoma, meningioma, vestibular schwannoma, AVM etc.) **Spinal Tumors**: Primary and recurrent Ependyoma, Astrocytoma, Meningioma, Hemangioma etc. **Liver Tumors**: Primary hepatocellular, Colangiocarcinomas and liver metastasis. **Lung Cancer**: Bronchogenic carcinoma and metastasis. Cancer of Bladder, rectal, uterine, prostate, breast, cervical, skin, pancreatic, soft tissue sarcoma, lymphoma, Anal cancer etc.

Please do not hesitate to contact us in case a query arises or further discussion you would like to have.



Leksell Gamma Knife Icon



Synergy-S Radiosurgery



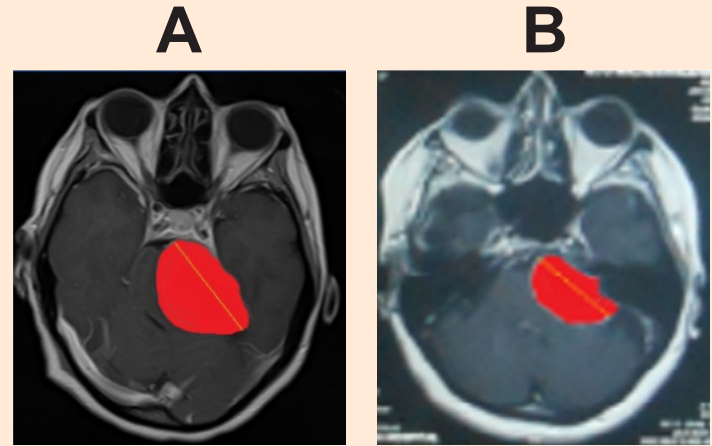
اپریل 2010 پر اینٹی بیٹ لیب: اب کچھ نہیں ہو سکتا، ایک جملہ جو ایک پرائیویٹ لیب کی رپورٹ دیکھ کر انتہائی سرد مہری سے کہا گیا۔ یہ جملہ سنتے ہی بالکل ساکت ہو گئی لیکن دوسرے لمحے میری تیرہ سالہ بیٹی نینا کی انگلیوں میں بیہوشیت ہو گئیں اور ماما کی ایک آواز آئی۔ میں نے مضبوطی سے اس کا ہاتھ تھام لیا اور بس یہی لمحہ تھا جب میں نے اپنے اندر ایک ہمت پیدا کی کہ میں زندہ رہوں گی اپنی بیٹی کے لئے۔ میں نے ہسپتال کا رخ کیا اور وہاں نیورکے ڈاکٹر کو رپورٹ دکھائی تو جواب پہلے سے زیادہ تکلیف دہ تھا ڈاکٹر نے کہا کہ یہ ٹیومر آپ کے حرام مغز کو چھو رہا ہے اور آپریشن ہوا تو آپریشن ٹیبل پر موت واقع ہو سکتی ہے اب کوئی دوسرا راستہ بھی نہیں۔ جب تمام معاملہ گھر والوں کو بتایا تو بھائی نے ڈاکٹر عبدالستار ہاشم کا نام بتایا اور کہا کہ ان سے مشورہ کرو۔ ڈوبتے کو تنکے کا سہارا کی مصداق NCCI آئی تو میرے ذہن پر بلکی غنودگی طاری تھے میرے ہاتھوں میں سنناہت تھے جب میں چلتی تو سیدھا نہیں چل سکتی تھی یعنی ڈس بیلنس ہو رہی تھی۔ صحت بھی خراب تھی اور بینائی پر بھی اثر پڑا تھا۔ میں ایک کالج میں لیکچرار ہوں۔ میرا تعلق کتاب سے ہے۔ دماغی مرض میں مبتلا ہو جانا بہت فکر انگیز بات تھی۔ میں سوچ رہی تھی اب کیا ہوگا۔ لیکن ہمت ساتھ تھی۔ میں اپنے گھر والوں کو تسلی دیتی تھی۔ میں اپریل 2010ء میں NCCI میں داخل ہو گئی۔ ڈاکٹر عبدالستار ہاشم نے میرے شنت ڈالی، شنت پڑتے ہی مندرجہ بالا تمام تکالیف فوری ختم ہو گئیں۔ لیکن بیماری تو اپنے جگہ قائم تھی۔ ڈاکٹر ہاشم اور ڈاکٹر اظہر کے مشورے سے مجھے پانچ بار گاما ناف ریزنگائی گئیں۔ کیمو کے بارے میں سنا اور دیکھا تھا کہ سر کے بال غائب، پلکیں، بھوس غائب لیکن گاما ناف ریز سے ایسا نہ ہوا۔ ڈاکٹر گراف پیپر پر کچھ لائنیں لگاتے اور بہت احتیاط سے ریزنگائی جاتی۔ لوگ خوف زدہ ہوتے ہیں کہ ریزنگائی سے نجانے کیا ہو جائے گا آپ خوفزدہ نہ ہوں۔ یہ ایک ایسی مشین ہے جو تکلیف دیے بغیر آپ کی بیماری کو دور کر دیتی ہے، اور انسان کو صحت بخشتی ہے، جب مجھے گاما ناف ریزنگائی جانی تو میں اس دوران آیت کریمہ کا ورد کرتی رہتی۔ ڈاکٹروں کی محنت اور بھرپور توجہ سے میں بہتر ہوتی چلی گئی، اور پھر ایک صحت مند انسان کی طرح روزانہ کے معمولات بھی انجام دینے لگی، 6 سال کا عرصہ گزر گیا اس دوران میرا ہر 6 ماہ بعد NCCI میں فالو اپ ہوتا رہا اور ٹیومر سکڑتے سکڑتے ختم ہو گیا۔

مارچ 2016: میرے سر پر عین اس مقام پر چوٹ لگی جہاں سے ٹیوب (شنت) ڈالی گئی تھی۔ اس ایکسیڈنٹ میں شنت دب گئی۔ کان کے پیچھے گردن سے شنت (ٹیوب) نظر آنے لگی۔ ڈاکٹر ہاشم کو دکھایا تو آپ نے فوری طور پر شنت آؤٹ کرنے کو کہا اور 31 مارچ 2016 کو میرے جسم سے شنت (ٹیوب) کو باہر نکال دیا۔ جس مقصد کے لئے یہ ٹیوب ڈالا گیا اب اس کی ضرورت نہیں رہی تھی، سبب چوٹ کی صورت میں بنا اور اب اسے نکالنا پڑا۔

22 اپریل 2016: آج میں اپنے کالج میں بیٹھی یہ آپ بیتی لکھ رہی ہوں، میری نظر ٹھیک ہے، میرے سر پر بال بھی موجود ہیں اور میری صحت بھی مکمل طور پر صحیح ہے۔ میں پڑھاری ہوں عام لوگوں سے زیادہ کام کرتی ہیں، نہ تنکھن محسوس کرتی ہوں اور نہ درد۔ میں ہر لمحے دعا گو ہوں کہ میرے ڈاکٹر اور NCCI کا تمام عملہ سلامت رہے اور یہ لوگوں کی خدمت اسی جذبے سے کرتے رہیں۔ موت کے قریب جانے والے جب زندگی کی طرف واپس آتے ہیں تو اپنے محسن کو کبھی نہیں بھولتے۔ میرے محسن ڈاکٹر عبدالستار ہاشم اور ڈاکٹر اظہر ہیں۔ جنھوں نے گاما ناف ریزنگائی کی مدد سے میری بیماری کو بھگا دیا۔ گاما ناف ریز سے لوگوں کو جو ڈر اور خوف ہے یا جو لوگ اس کے بارے میں نہیں جانتے وہ لوگ ایک بار مجھ سے ضرور ملیں۔ زندگی کو خوشی سے گزاریں۔ ڈر اور نا سنجی کی وجہ سے زندگی کو داؤ پر نہ لگائیں۔

A case of huge Meningioma treated with Synergy S

40 yrs old working lady k/c of Huge Meningioma of Lt CP angle, had Vertigo, difficulty in swallowing, imbalance, decreased Lt hearing, decreased both sides vision for 6 months to her presentation. She was given death signals by some of the surgeons. At NCCI she was given Radiosurgery along with VP shunt in April 2010. 2500 cGy=500 cGy x 5 fraction @ 75 % Isodose line radiosurgery dose was used. She made an excellent gradual recovery. She had regular follow-ups and good compliance to the medical advice. As a result she has overcome all of her initial complaints. Her tumor shrunk and VP shunt was removed in March this year, she has completed 6 years of excellent health with quality of life. She is doing her job very actively and with full spirits.



A. Before treatment

B. After treatment

A case of Acoustic Schwannoma treated with Gamma Knife Radiosurgery.

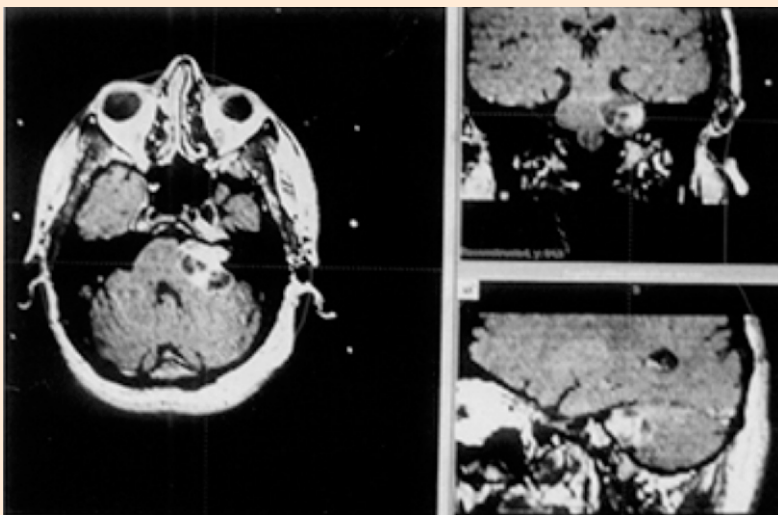


Fig.1: Left Acoustic Schwannoma before Gamma Knife.

This 32 years old gentleman from Lahore was a diagnosed case of left Acoustic Schwannoma. He presented with progressive left hearing loss, left hemifacial numbness, mild headache, loss of taste and occasional imbalance since two months. Clinical examination revealed left hemifacial hypoesthesia and poor corneal reflex. MRI shows heterogeneously enhancing mass (3.5 x 2.4 x 2.4) in left CPA with intracanalicular extension. He was treated with marginal dose of 12.5 Gy at 50% isodose line to the target volume of 9.0 cc. Multiple isocenters with 14, 8 and 4 mm collimators were used in APS mode. He was discharged on tapering doses of dexamethasone and advised for follow up images after 6 months.

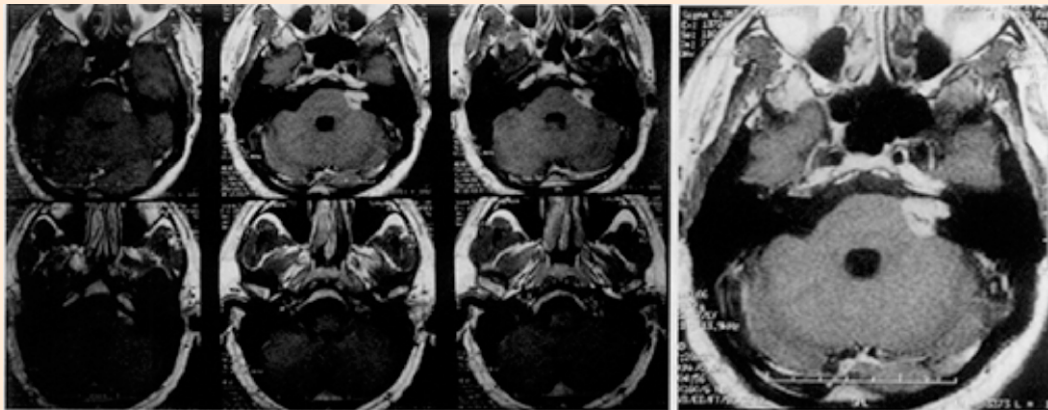


FIG.2 and 3: One year after Gamma Knife with significant reduction in size and symptomatic improvement.

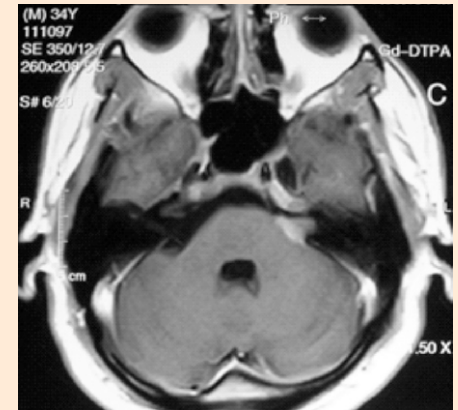
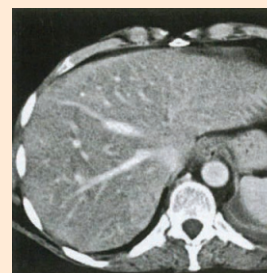
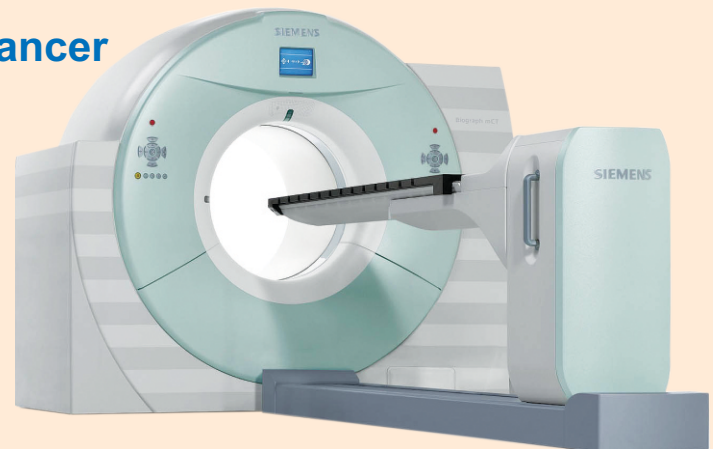


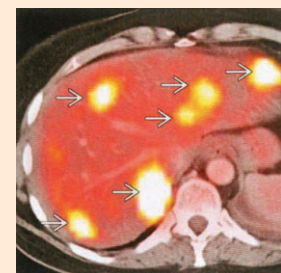
Fig.4. Two years after Gamma knife. Only a tiny residual is visible.

PET Scan in Cancer

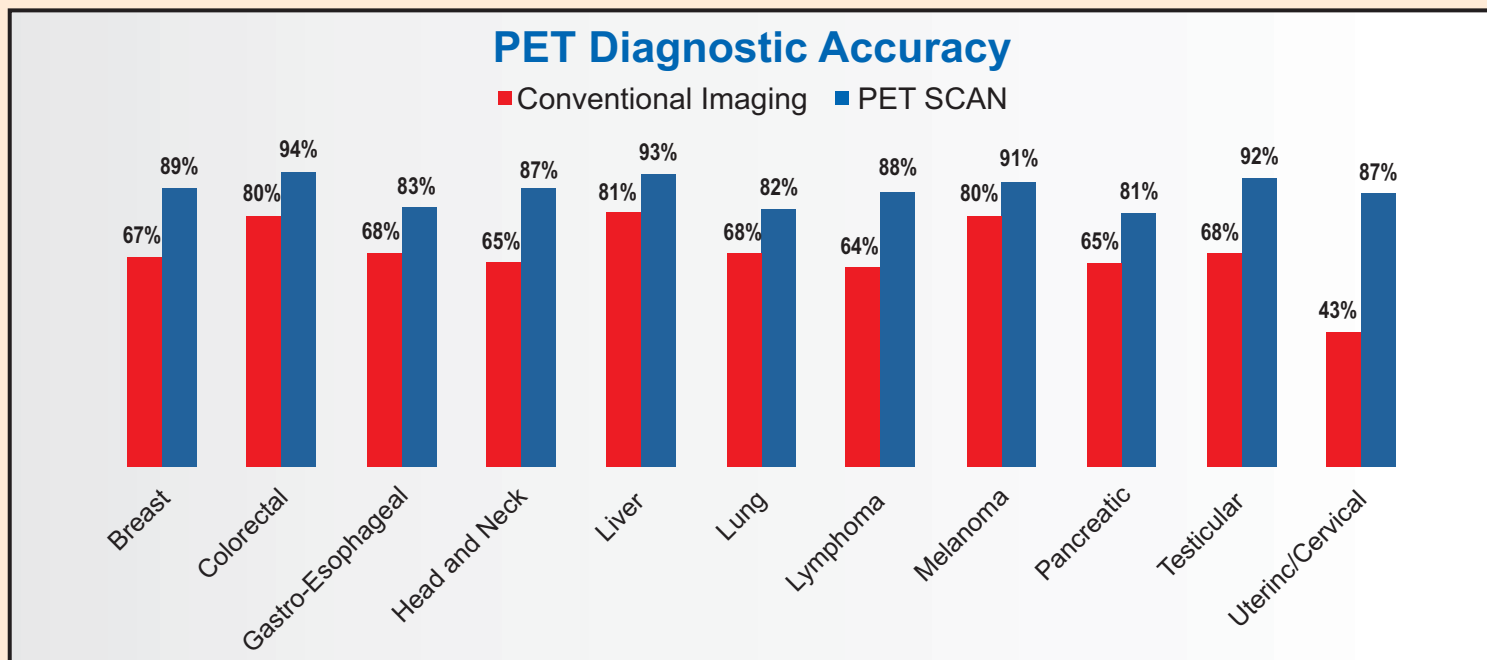
Cancer cells have a much higher metabolic rate than normal cells as they consume higher levels of glucose for metabolism. A small amount of radioactive glucose (18FDG - Fluorodeoxyglucose) is injected into the body and the exact location of any abnormal activity can be detected at a very early stage by separating metabolic change from structural change, this enables the disease to be diagnosed even before structural changes have occurred and malignant process can be distinguished from necrosis, edema and scarring. Due to an excessive glucose uptake by tumor cells, very small and early metastatic lesions anywhere in the body are easily detected. After surgery normal anatomy may be altered making reading CT or MRI scans difficult or impossible but PET can be used to identify any suspicious areas of possible recurrence despite gross anatomical changes. PET helps in avoiding invasive procedure of removing benign nodules or taking biopsies to determine malignancy. PET is also used to see damaged heart tissues, and to identify brain disorders such as Alzheimer's and Parkinson's diseases and epilepsy.



Axial CECT (with well-timed portal venous phase) of a patient with a history of breast cancer and recent rise in CA27-29 shows no evidence of hepatic lesions.



Axial fused PET/CT shows at least 6 FDG-avid bilobar hepatic metastatic lesions. One of the major added benefits of PET/CT is detection of lesions not identifiable on CT, even with good contrast enhancement.



1 Stephenson CM, Levin RD, Spector T, Lis CG. Phase I clinical trial to evaluate the safety, tolerability, and pharmacokinetics of high-dose intravenous ascorbic acid in patients with advanced cancer. *Cancer Chemother Pharmacol.* 2013.
 2 Jackson JA, Riordan HD, Bramhall NL, Neathery S. Sixteen-year history with high dose intravenous vitamin C treatment for various types of cancer and other diseases. *J Orthomol Med.* 2002